



**Read the  
separate  
safety  
manual  
before  
installing,  
operating,  
or servicing**

Published Manual Number/ECN: MECMCR11BE/2021203A

- Publishing System: TPAS2
- Access date: 05/18/2021
- Document ECNs: Latest

# Schematic/Electrical Parts

## Milnor® Coin-operated Washer-extractor MCR/T12E5, MCR/T16E5, and MCR/T18E4



PELLERIN MILNOR CORPORATION POST OFFICE BOX 400, KENNER, LOUISIANA 70063-0400, U.S.A.



## **Table of Contents**

### **MECMCR11BE/21203A**

<b>Page</b>	<b>Description</b>	<b>Document</b>
1	Component Parts List	WCMW1PL/2021203N
3	Limited Standard Warranty	BMP720097/2019036
4	How to Get the Necessary Repair Components	BIUUUD19/20081231
5	How to Use Milnor® Electrical Schematic Diagrams	BIUUUK01/20130308
18	Sample Schematic	BMP010012/2018343
20	3 Phase Motor Connection Diagram	BMP850029/1999362B
21	3P Motor Diagram-Multivolt	W80008/2001253A
22	Control Box Layouts	WCMW1TG1/2016093B
24	Board to Board Wiring	WCMW1BW/2006464B
26	Electric Valves	WCMW1CV/2006493B
28	Microprocessor Inputs	WCMW1IA/2016076B
30	Control Circuit Transformer	WCMW1LV/2017365B
32	Start Circuit and Door Interlock	WCMW1S+/2016076B
34	Variable Speed Inverter	WCMW1VP/2015163B
36	Variable Speed Inverter V1000	WCMW1VPA/2020424B
38	Variable Speed Inverter GPD205 120V/1P	WCMW1VPS/2021203B
40	Variable Speed Inverter WEG CFW300 120V/1P	WCMW1VPSA/2021203B



# COMPONENT PARTS LIST

COMPONENT		FUNCTION OF THIS		WHERE TO FIND			
NUMBER	COMPONENT NUMBER	THIS COMPONENT	MIL NOR P/N	DESCRIPTION	LOCATION		
	>>CONTROL BOX LAYOUTS						
001	CONTROL PANEL LAYOUT	WCMW1TG1	B2T2015010	TAG:MCR12E5, MCR16E5, MCR18E4	CONTROL PANEL		
BA	>>PRINTED CIRCUIT BOARDS						
BASP	BOARD-SWITCH PANEL	WCMW1BW	98CMCR0903	BD:MCR COIN STATUS->TEST	SWITCH PANEL		
BAUP	BOARD-PROCESSOR	WCMW1BW	98CMCR0904	BD:12OUTPUT-8INPUT COIN->TEST	CONTROL PANEL		
CR	>>RELAY-PILOT OR CONTROL						
CRDC	RELAY-DOOR CLOSED	WCMW1S+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL		
CRDL	RELAY-DOOR LOCKED	WCMW1S+	09C024D71	RELAY 4PDT DIFGLD 14PN 240V	CONTROL PANEL		
CS	>>CONTACTOR-MOTOR STARTER						
CSVP	CONTACTOR-ENABLE INVERTER	WCMW1S+	98CMCR1801	12A 3P CONTACTOR NR 240V5/6	CONTROL PANEL		
EF	>>FUSE OR FUSE HOLDER						
EF71A	FUSE-240V INCOMING POWER X-BUSS	WCMW1S+	09FF002F2H	2A 250V F2H CONTROL FUSE	CONTROL PANEL		
EF71B	FUSE-240V INCOMING POWER Y-BUSS	WCMW1S+	09FF002F2H	2A 250V F2H CONTROL FUSE	CONTROL PANEL		
EF71	FUSE-120V FEED TRANSFORMER PRIMARY	WCMW1LV	09FF006AWV	FUSE BUSS STYLE CC TYPE FNQ-R 6 AMP 60	CONTROL PANEL		
EF72	FUSE-120V FEED TRANSFORMER PRIMARY	WCMW1LV	09FF006AWV	FUSE BUSS STYLE CC TYPE FNQ-R 6 AMP 60	CONTROL PANEL		
EM	>>ELECTROMAGNET AND SOLENOID						
EMBS	SOLENOID-COIN BLOCKING	WCMW1S+	38C085	REJ.W/LOCK-MECH 230V CASTIC	COIN ACCEPTOR		
EMDL	SOLENOID-DOOR LOCK	WCMW1S+	09K063D12	DOOR LOCK SOLENOID 12V	DOOR LOCK		
ES	>>POWER SUPPLY-ELECTRONIC						
ESPS	POWER SUPPLY-MICROPROCESSOR	WCMW1BW	98CMCR0905	PWRSUP 13V/OUT 85-264VAC/IN	CONTROL PANEL		
EX	>>TRANSFORMERS						
EXHV (208/240V)	TRANSFORMER-208/240V	WCMW1LV	98CMCR0902	AUTOXFMR 208V/230V 250VA	CONTROL PANEL		
EXHV (120VAC)	TRANSFORMER-120/240V	WCMW1LV	09UB20AA71	XFMR 120V PRI/240V SEC 200VA	CONTROL PANEL		
MR	>>>MOTORS						
MTWE	MOTOR-BASKET	WCMW1VP	MESSAGE SO	SEE SPECIFIC COMPONENT+NAMEPLATE	MACHINE BASE		
MV	>>>MOTOR POWER INVERTERS						
MVINV (MCR09/12)	INVERTER-BASKET MOTOR	WCMW1VP	09MV020F74	INVERTER 2HP 230V (GPD315)	CONTROL PANEL		
MVINV (MCR18)	INVERTER-BASKET MOTOR	WCMW1VP	09MV030F74	VARSPEED 3HP 11A 230V GPD315	CONTROL PANEL		
MVINV (MCR18)	INVERTER-BASKET MOTOR	WCMW1VPA	09MVWB01174	V1000 INVERTER 11AMP 230V	CONTROL PANEL		
MVINV (MCR09/12)	INVERTER-BASKET MOTOR (120V/1P)	WCMW1VPS	09MV005C37	INVERTER GPD205 5 AMPS 120V	CONTROL PANEL		
MVINV (MCR09/12)	INVERTER-BASKET MOTOR (120V/1P)	WCMW1VPSA	09MVWW006A37	WEG CFW300 INVERT 120V1P IN 240V3P OUT	CONTROL PANEL		
PX	>>>PROXIMITY SWITCH						
PXCC	PROX SWITCH-COIN SLOT QUARTER	WCMW1IA	38C085	REJ.W/LOCK-MECH 230V CASTIC	COIN ACCEPTOR		

# COMPONENT PARTS LIST

WCMW1PL/2021203N

COMPONENT NUMBER	FUNCTION OF THIS COMPONENT NUMBER	WHERE TO FIND			MIL NOR P/N	DESCRIPTION	LOCATION
		THIS COMPONENT					
SH	>>SWITCH-HAND OPERATED						
SH01	SWITCH-208/240V	WCMW1LV			09N050	TOGSW SPDT NO OFF 10A250V	CONTROL PANEL
SK	>>SWITCH-KEYLOCK						
SKAT	KEY SWITCH-ATTENDANT	WCMW1IA			09N127C	KEYSW SPST 7A120VAC SCREW TERM	SWITCH PANEL
SM	>>SWITCH-MECHANICAL OPERATED						
SMD	SWITCH-DOOR CLOSED	WCMW1S+			02-04177	MICROSWITCH=W/MAN CUT LEVER	DOOR LOCK
SMDL	MECHANICAL SW-DOOR LOCKED	WCMW1S+			09R010D	DOOR LOCK SWITCH	DOOR LOCK
SMVB	MECHANICAL SWITCH-VIBRATION	WCMW1IA			98CMCR0910	VIBRATION SWITCH	CONTROL PANEL
SN	>>SNUBBER						
SNBS	SNUBBER-COIN BLOCKING SOLENOID	WCMW1S+			09ARC2047J	SNUB .2MFD 470 OHM 600VDC	CONTROL PANEL
SNVP	SNUBBER-INVERTER ENABLE CONTACTOR	WCMW1S+			09ARC2047J	SNUB .2MFD 470 OHM 600VDC	CONTROL PANEL
SP	>>SWITCH-PRESSURE OPERATED						
SPLL	PRESSURE SWITCH-LEVEL	WCMW1IA			09N086A	PRESS SW INVEN SYS #738-761	CONTROL PANEL
VE	>>VALVE-ELECTRIC OPERATED						
VEC1	VALVE-FLUSH CHEM. POCKET 1	WCMW1CV			96P061A71	3/4"INLET 10M HOSEOUT 220/240V	REAR OF MACH.
VEC2	VALVE-FLUSH CHEM. POCKET 2	WCMW1CV			96P061A71	3/4"INLET 10M HOSEOUT 220/240V	REAR OF MACH.
VEC3	VALVE-FLUSH CHEM. POCKET 3	WCMW1CV			96P061A71	3/4"INLET 10M HOSEOUT 220/240V	REAR OF MACH.
VEDR (MCR12)	VALVE-DRAIN	WCMW1CV			96D25RAA71	DRAIN/VALRTANG 2"N/O 240V 50/60	REAR OF MACH.
VEDR (MCR18)	VALVE-DRAIN	WCMW1CV			96D35RAA71	DRAIN/VAL RT-ANG 3" 240V 50/60C	REAR OF MACH.
VEWC	VALVE-COLD WATER	WCMW1CV			96P060A71	3/4"DUOINLET 1/2"HOSEOUT 240V	REAR OF MACH.
VEWH	VALVE-HOT WATER	WCMW1CV			96P060A71	3/4"DUOINLET 1/2"HOSEOUT 240V	REAR OF MACH.

# **PELLERIN MILNOR CORPORATION**

## **LIMITED STANDARD WARRANTY**

We warrant to the original purchaser that MILNOR machines including electronic hardware/software (hereafter referred to as "equipment"), will be free from defects in material and workmanship for a period of one year from the date of shipment (unless the time period is specifically extended for certain parts pursuant to a specific MILNOR published extended warranty) from our factory with no operating hour limitation. This warranty is contingent upon the equipment being installed, operated and serviced as specified in the operating manual supplied with the equipment, and operated under normal conditions by competent operators.

Providing we receive written notification of a warranted defect within 30 days of its discovery, we will—at our option—repair or replace the defective part or parts, EX Factory (labor and freight specifically NOT included). We retain the right to require inspection of the parts claimed defective in our factory prior to repairing or replacing same. We will not be responsible, or in any way liable, for unauthorized repairs or service to our equipment, and this warranty shall be void if the equipment is tampered with, modified, or abused, used for purposes not intended in the design and construction of the machine, or is repaired or altered in any way without MILNOR's written consent.

Parts damaged by exposure to weather, to aggressive water, or to chemical attack are not covered by this warranty. For parts which require routine replacement due to normal wear—such as gaskets, contact points, brake and clutch linings, belts, hoses, and similar parts—the warranty time period is 90 days.

We reserve the right to make changes in the design and/or construction of our equipment (including purchased components) without obligation to change any equipment previously supplied.

ANY SALE OR FURNISHING OF ANY EQUIPMENT BY MILNOR IS MADE ONLY UPON THE EXPRESS UNDERSTANDING THAT MILNOR MAKES NO EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE OR ANY OTHER WARRANTY IMPLIED BY LAW INCLUDING BUT NOT LIMITED TO REDHIBITION. MILNOR WILL NOT BE RESPONSIBLE FOR ANY COSTS OR DAMAGES ACTUALLY INCURRED OR REQUIRED AS A RESULT OF: THE FAILURE OF ANY OTHER PERSON OR ENTITY TO PERFORM ITS RESPONSIBILITIES, FIRE OR OTHER HAZARD, ACCIDENT, IMPROPER STORAGE, MIS-USE, NEGLIGENCE, POWER OR ENVIRONMENTAL CONTROL MALFUNCTIONS, DAMAGE FROM LIQUIDS, OR ANY OTHER CAUSE BEYOND THE NORMAL RANGE OF USE. REGARDLESS OF HOW CAUSED, IN NO EVENT SHALL MILNOR BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, LIQUIDATED, OR CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

THE PROVISIONS ON THIS PAGE REPRESENT THE ONLY WARRANTY FROM MILNOR AND NO OTHER WARRANTY OR CONDITIONS, STATUTORY OR OTHERWISE, SHALL BE IMPLIED.

WE NEITHER ASSUME, NOR AUTHORIZE ANY EMPLOYEE OR OTHER PERSON TO ASSUME FOR US, ANY OTHER RESPONSIBILITY AND/OR LIABILITY IN CONNECTION WITH THE SALE OR FURNISHING OF OUR EQUIPMENT TO ANY BUYER.

BMP720097/19036

## How to Get the Necessary Repair Components



This document uses Simplified Technical English.  
Learn more at <http://www.asd-ste100.org>.

You can get components to repair your machine from the approved supplier where you got this machine. Your supplier will usually have the necessary components in stock. You can also get components from the Milnor® factory.

Tell the supplier the machine model and serial number and this data for each necessary component:

- The component number from this manual
- The component name if known
- The necessary quantity
- The necessary transportation requirements
- If the component is an electrical component, give the schematic number if known.
- If the component is a motor or an electrical control, give the nameplate data from the used component.

To write to the Milnor factory:

Pellerin Milnor Corporation  
Post Office Box 400  
Kenner, LA 70063-0400  
UNITED STATES

Telephone: 504-467-2787  
Fax: 504-469-9777  
Email: [parts@milnor.com](mailto:parts@milnor.com)

— End of BIUUUD19 —



BIUUUK01 (Published) Book specs- Dates: 20130308 / 20130308 / 20130308 Lang: ENG01 Applic: PCR UUU

## How to Use Milnor® Electrical Schematic Diagrams

Milnor® electrical schematic manuals contain a table of contents/component list and a set of schematic drawings. These documents are cross referenced and must be used together.

The table of contents/components list shows, for every component on every schematic in the manual, the component item number (explained in detail below), statement of function, parent schematic number, part number, description and electric box location. In older manuals, two component lists are provided: List 1 sorts the components by function, and List 2 by type of component. Newer schematic manuals include only the list sorted by component number.

The schematic drawings use symbols for each electromechanical component, and indicate the function of each. Integrated circuits are not shown, but the function of each microprocessor input and output is stated. Certain electrical components not pertinent to circuit logic, such as wire connectors, are not represented on the schematic.

Most machines require several schematics to describe the complete control system and all the options available on the included models. In most manuals there are some schematic pages that don't apply to your specific machine because certain options and configurations are mutually exclusive or are not necessary in all markets. You may find it helpful to mark or remove such pages. A schematic page that only applies to a subset of machines will normally state, in the title, which models and/or options it covers. Compare this with the nameplate on your machine and with your purchase records.

Each schematic is devoted to circuits with common functions (e.g., microprocessor inputs, motor contactors). Schematics appear in the manual in alphanumeric order.

### 1. Component Prefix Classifications and Descriptions

Component item numbers consist of up to six characters and appear as part of a component's symbol on the schematic. The first two characters indicate the general class of component, and the remaining characters are a mnemonic for the function. For example, "CD" is the code for all time delay relays, and "SR" stands for safety reset. Thus, CDSR is a time delay relay that serves as a safety reset.

The following are descriptions of electrical components used in Milnor® machines. Descriptions are in alphabetical order by the component class code (two character prefix).

**Note 1:** Some component class codes do not have a corresponding symbol, but are represented by a box and an accompanying note describing the component. Examples of such codes are BA (printed circuit board), ED (electronic display), and ES (electronic power supply).

**BA=Printed Circuit Board**—Insulating substrate on which a thin pattern of copper conductors has been formed to connect discrete electronic components also mounted on the board.

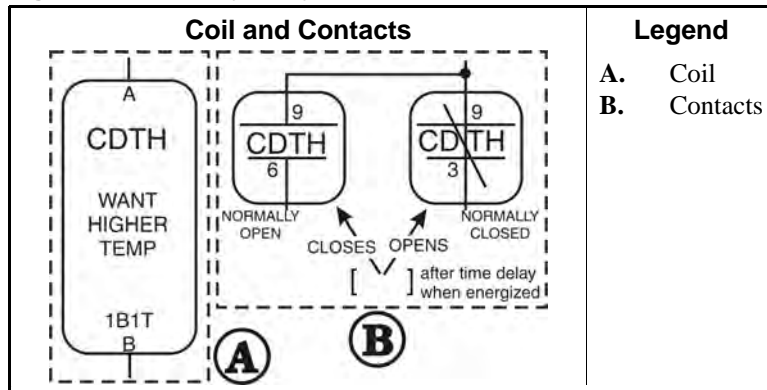
**CB=Circuit Breaker (Figure 1)**—Automatic switch that opens an electric circuit in abnormal current conditions (e.g., an overload).

**Figure 1: Circuit Breaker (CB)**



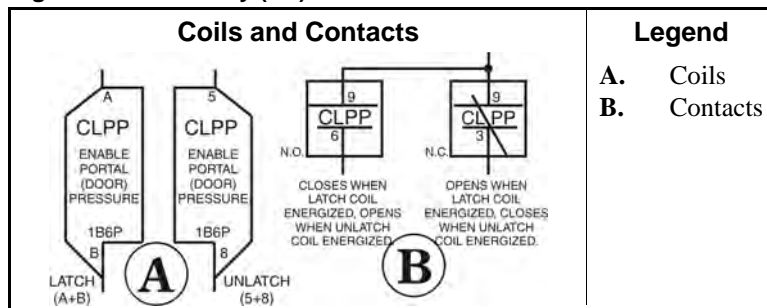
**CD=Control, Time Delay Relay (Figure 2)**—A relay whose contacts switch only after a fixed or adjustable delay, once voltage has been applied to its coil. The contacts switch back to normal (de-energized state) immediately when the voltage is removed.

**Figure 2: Time Delay Relay (CD)**



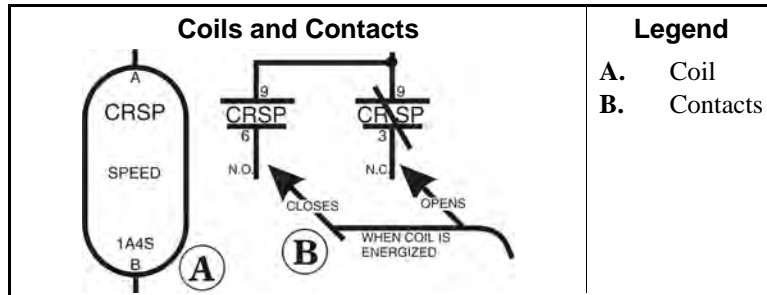
**CL=Control, Latch Relay (Figure 3)**—A relay which latches in an energized or set position when operated by one coil (the latch/set coil). The relay stays latched even though coil voltage is removed. The relay releases or unlatches when voltage is applied to a second coil (the unlatch/reset coil).

**Figure 3: Latch Relay (CL)**

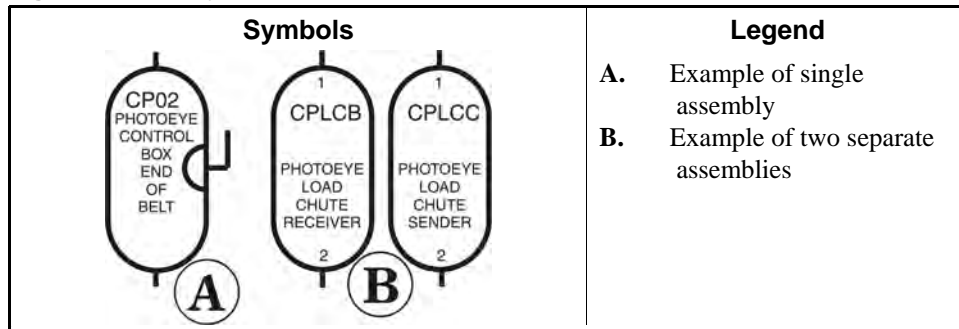


**CR=Control, Relay (Figure 4)**—A relay whose contacts switch immediately when voltage is applied to its coil and revert to normal when the voltage is removed.

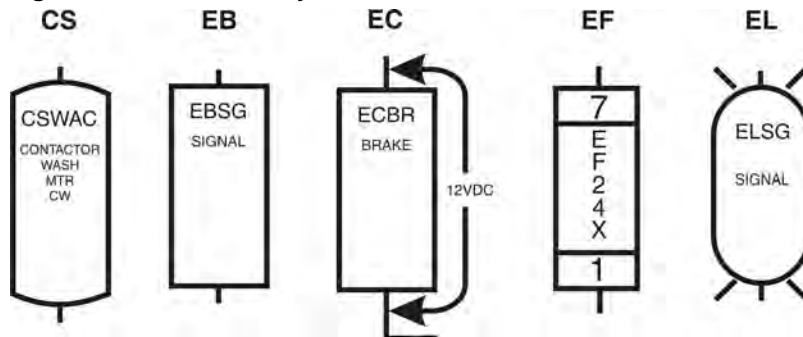
**Figure 4: Standard Relay (CR)**



**CP=Control, Photo-Eye (Figure 5)**—Photo-eyes sense the presence of an object without direct physical contact. Photo-eyes consist of a transmitter, receiver, and output module. These components may be housed in one assembly with the transmitter bouncing light off of a reflector to the receiver, or these components can be housed in two separate assemblies with the transmitter pointed directly at the receiver. The photo-eye can be set to turn on its output either when the light beam becomes blocked (dark operate) or when it becomes un-blocked (light operate).

**Figure 5: Photo-eye (CP)**

**CS=Control, Contactor/Motor Starter (Figure 6)**—A relay capable of handling heavier electrical loads, usually a motor.

**Figure 6: Other Control Symbols**

**EB=Electric Buzzer (Figure 6)**—An audible signaling device.

**EC=Electric Clutch (Figure 6)**—A clutch consists of a coil and a rotor. The rotor has two separate rotating plates. These plates are free to rotate independent of each other until the coil is energized. Once energized the two plates turn as one.

**ED=Electronic Display**—A visual presentation of data, such as an LCD (liquid crystal display), LED (light emitting diode) display, or VFD (vacuum florescent display).

**EF=Electric Fuse (Figure 6)**—A fuse is an over-current safety device with a circuit opening fusible member which is heated and severed by the passage of over-current through it.

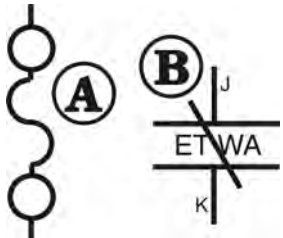
**EL=Electric Light (Figure 6)**—Indicator lights may be either incandescent or fluorescent.

**EM=Electro Magnet Solenoid**—A device consisting of a core surrounded by a wire coil through which an electric current is passed. While current is flowing, iron is attracted to the core (e.g., a pinch tube drain valve solenoid).

**ES=Electronic Power Supply**—A device that converts AC (alternating current) to filtered and regulated DC (direct current). The input voltage to the power supply is usually 120 or 240 VAC. The output is +5, +12, and -12 VDC.

**ET=Thermal Overload (Figure 7)**—A safety device designed to protect a motor. A thermal overload consists of an overload block, heaters, and an auxiliary contact. The auxiliary contact is normally installed in a safety (three-wire) circuit that stops power to the motor contactor coil when a motor overload occurs.

Figure 7: Thermal Overload (ET)

Schematic Symbol	Legend
	<p>A. Heater (one per phase)</p> <p>B. Overload relay; contacts open if overload condition exists</p>

**EX=Electrical Transformer (Figure 8)**—A device that transfers electrical energy from one isolated circuit to another, often raising or lowering the voltage in the process.

**KB=Keyboard**—Device similar to a typewriter for making entries to a computer.

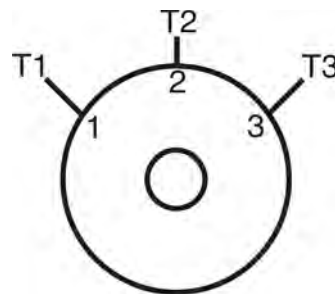
**MN=Electronic Monitor (CRT)**—A cathode ray tube used for visual presentation of data.

**MR=Motors (Figure 9)**—Electromechanical device that converts electrical energy into mechanical energy.

Figure 8: Transformer (EX)



Figure 9: Electric Motor (MR)

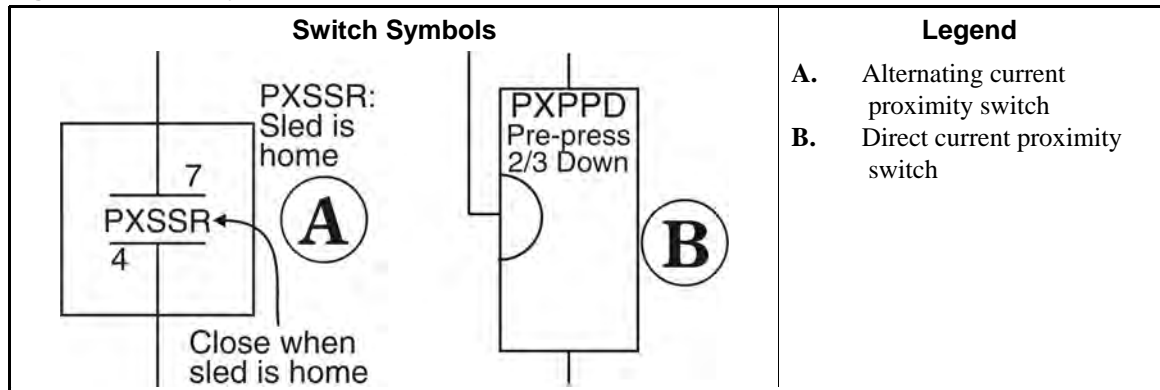


**MV=Motor (Variable Speed) Inverter**—To vary the speed of an AC motor, the volts to frequency ratio must be kept constant. The motor will overheat if this ratio is not maintained. The motor variable speed inverter converts three phase AC to DC. The inverter then uses this DC voltage to generate AC at the proper voltage and frequency for the commanded speed.

**Note 2:** Switch symbols used in the schematics and described below always depict the switch in its un-actuated state.

**PX=Proximity Switch (Figure 10)**—A device which reacts to the proximity of a target without physical contact or connection. The actuator or target causes a change in the inductance of the proximity switch which causes the switch to operate. Proximity switches can be two-wire (AC) or three-wire (DC) devices.

Figure 10: Proximity Switches (PX)



**SC=Switch, Cam Operated (Figure 11)**—A switch in which the electrical contacts are opened and/or closed by the mechanical action of a cam(s). Applications include 35-50 pound timer operated machines, Autospot, timer reversing motor assembly, and some balancing systems.

**SH=Switch, Hand Operated (Figure 12)**—A switch that is manually operated (e.g., *Start button*, *Master switch*, etc.).

Figure 11: Cam Switch (SC)

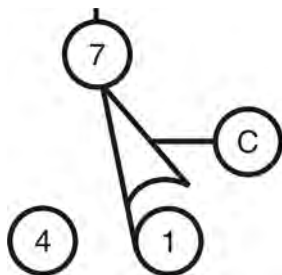
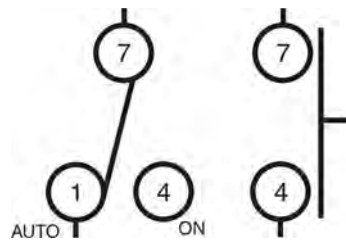


Figure 12: Hand Operated Switch (SH)



**SK=Switch, Key Lock (Figure 13)**—A switch that requires a key to operate. This prevents unauthorized personnel from gaining access to certain functions (e.g., the *Program menu*).

**SL=Switch, Level Operated (Figure 14)**—A switch connected to a float that causes the switch to open and close as the level changes.

Figure 13: Key Switch (SK)

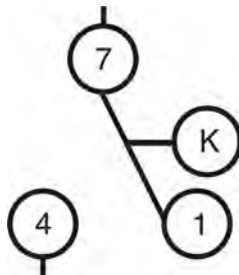
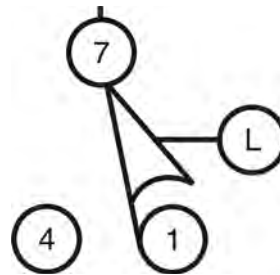


Figure 14: Level Switch (SL)



**SM=Switch, Mechanically Operated (Figure 15)**—A switch that is mechanically operated by a part of or the motion of the machine (e.g., door closed switch, tilt limit switches, etc.)

**SP=Switch, Pressure Operated (Figure 16)**—A switch in which a diaphragm presses against a switch actuator.

Figure 15: Mechanical Switch (SM)

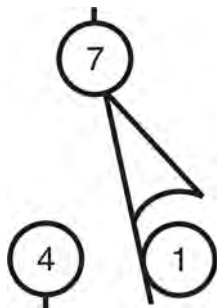
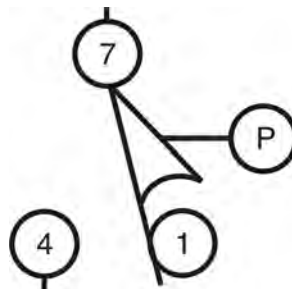


Figure 16: Pressure Switch (SP)



**ST=Switch, Temperature Operated (Figure 17)**—A switch that is actuated at a preset temperature (e.g., dryer safety probes) or has adjustable set points (e.g., Motometers or Combistats).

**TB=Terminal Board (Figure 18)**—A strip or block for attaching or terminating wires.

Figure 17: Temperature Switch (ST)

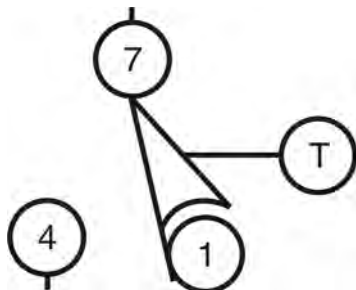
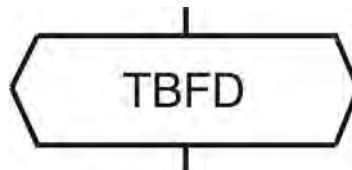


Figure 18: Terminal Board (TB)



**VE=Valve, Electric Operated (Figure 19)**—A valve operated by an electric coil to control the flow of fluid. The fluid can be air, water or hydraulic.

Figure 19: Electrically Operated Valve (VE)



**ZF=Rectifier (Figure 20)**—A solid state device that converts alternating current to direct current.

Figure 20: Bridge Rectifier (ZF)

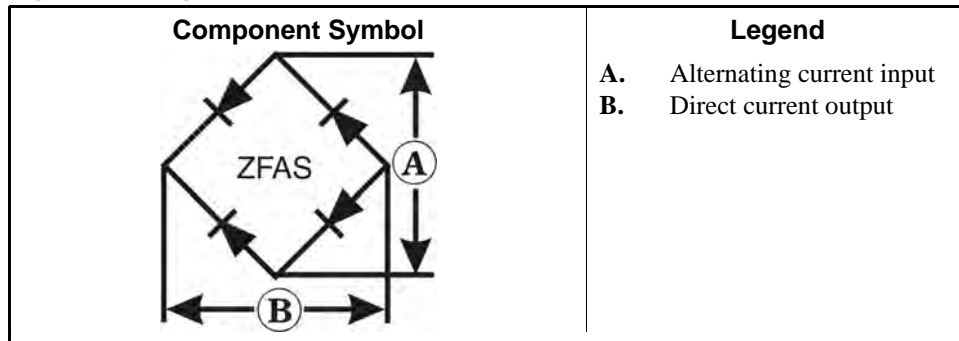
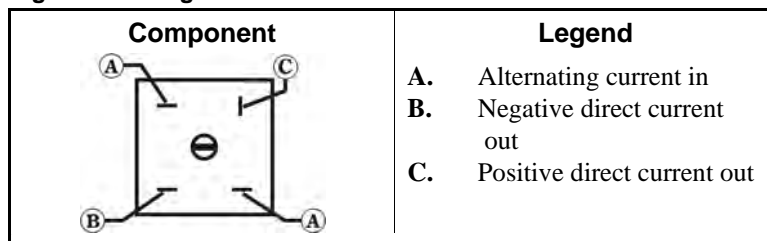


Figure 21: Bridge Rectifier



**WC=Wiring Connector**—A coupling device for joining two cables or connecting a cable to an electronic circuit or piece of equipment. Connectors are male or female, according to whether they plug into or receive the mating connector.

## 2. Component Terminal Numbering

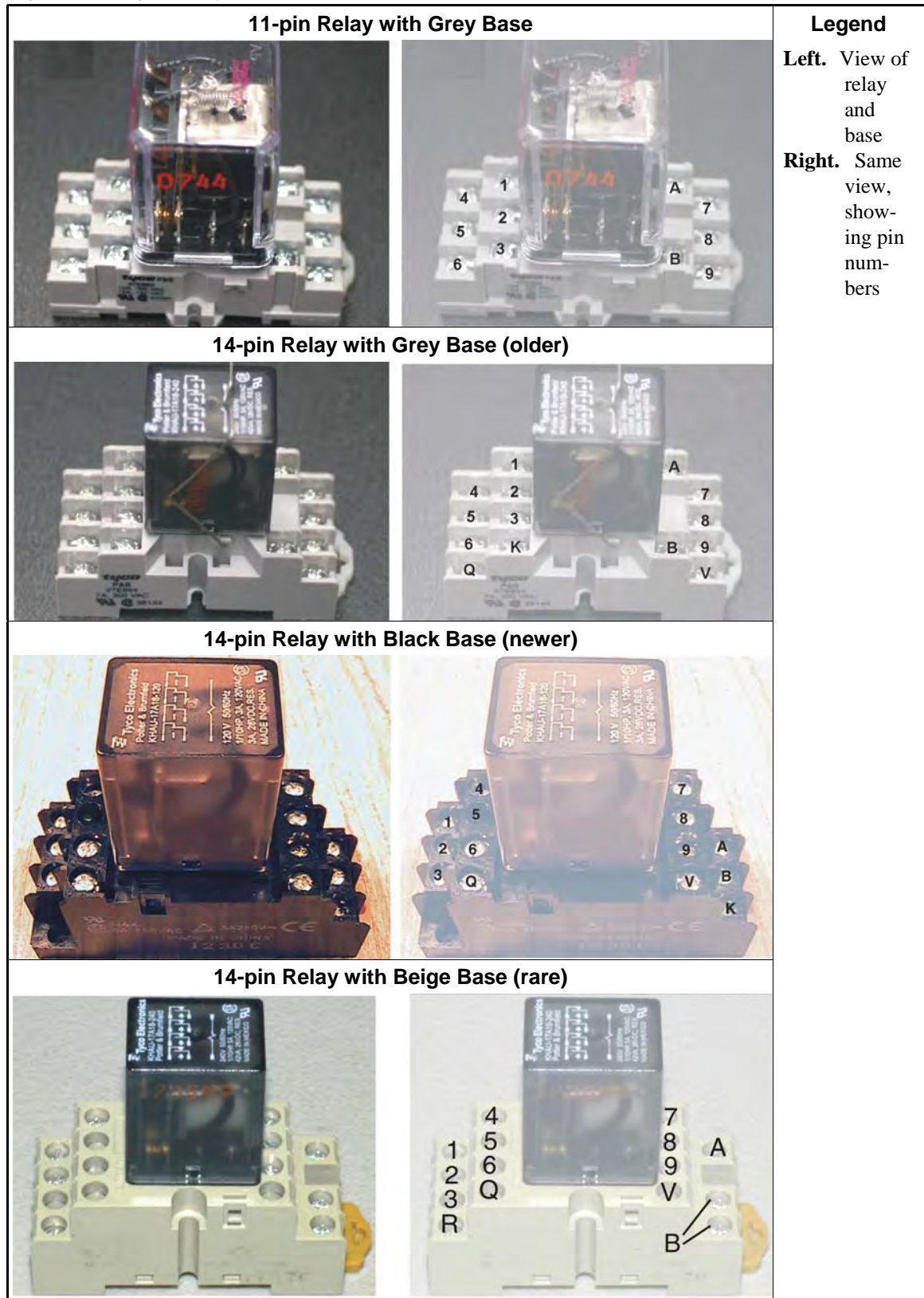


**CAUTION 1: Risk of Mis-wiring**—Due to electrical component manufacturing inconsistencies, the pin numbers imprinted on components such as connectors and relay bases used on Milnor machines often do not correspond to the pin numbers shown in the schematics.

- Ignore pin numbers imprinted on in-line connectors (e.g., Molex connectors) and relay bases.
- Use the pin identification illustrations herein to identify pins on these components.



Figure 22: Plug-in Relays





**Note 3:** Relay functional names ending with the letter "M" (e.g., CRxxM) are not discrete components but are a component of a printed circuit board. They are usually not individually replaceable.

**Figure 23: AMP Connector Pin Locations**

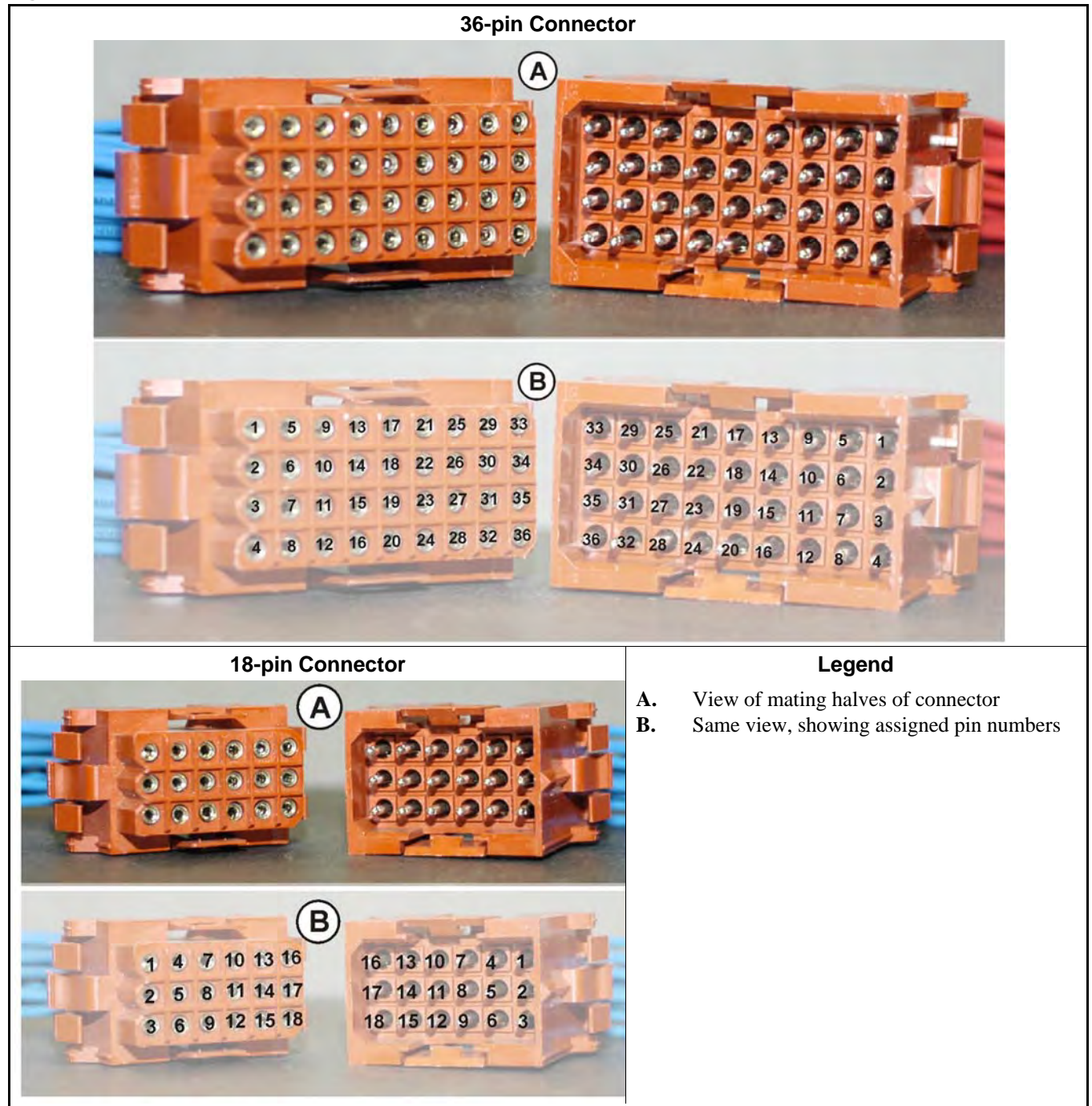


Figure 24: Molex Connector Pin Locations

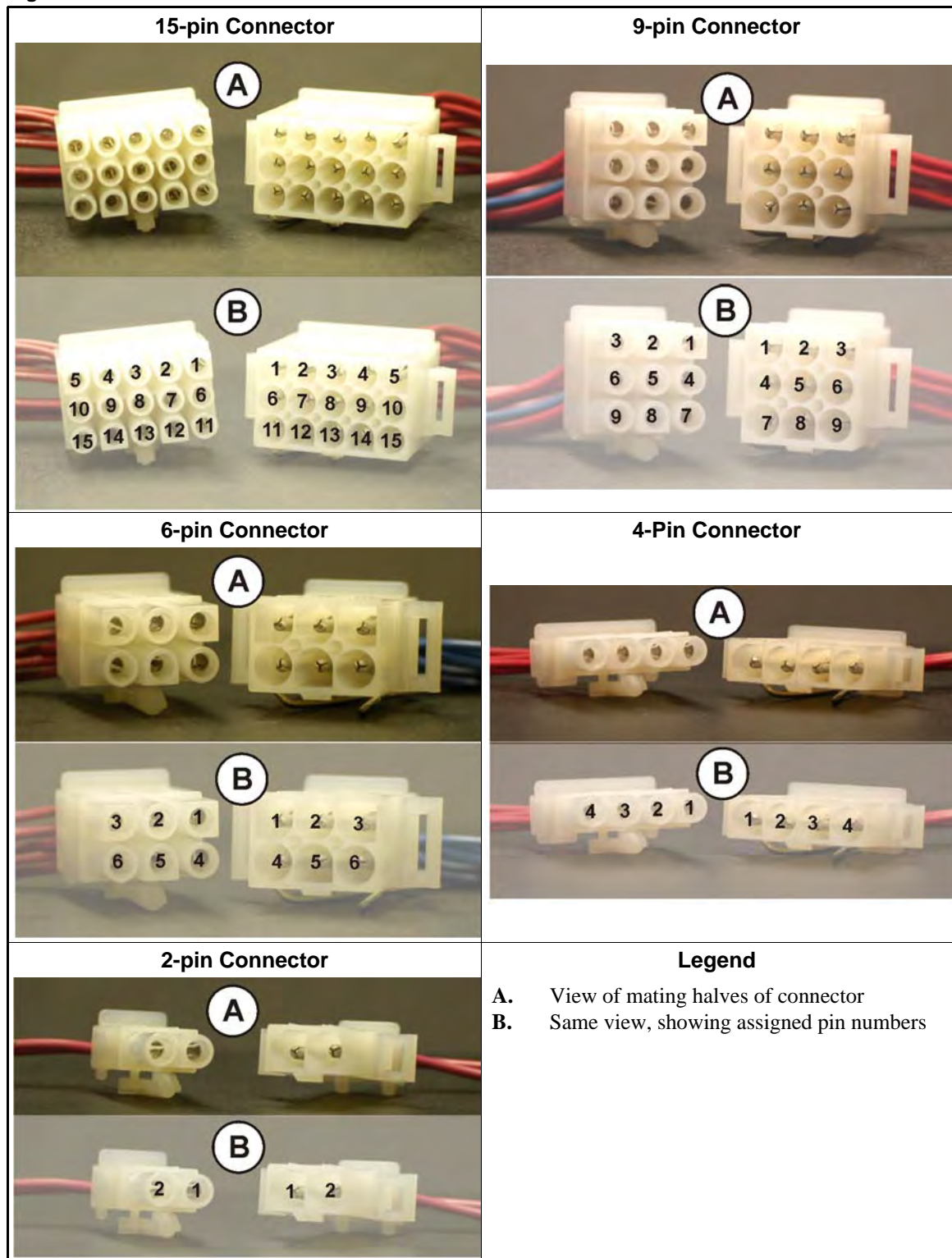


Figure 25: Pressure Switch

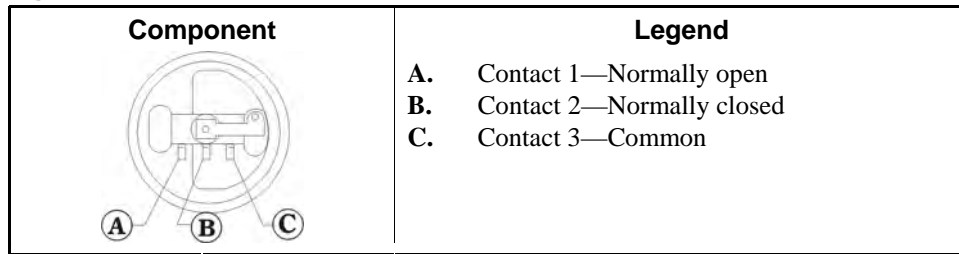


Figure 26: Toggle Switch

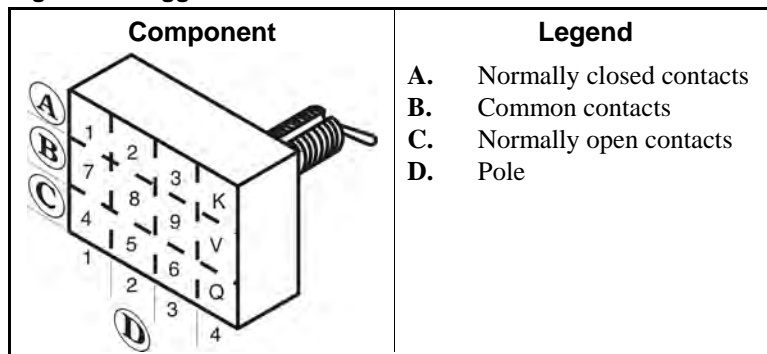
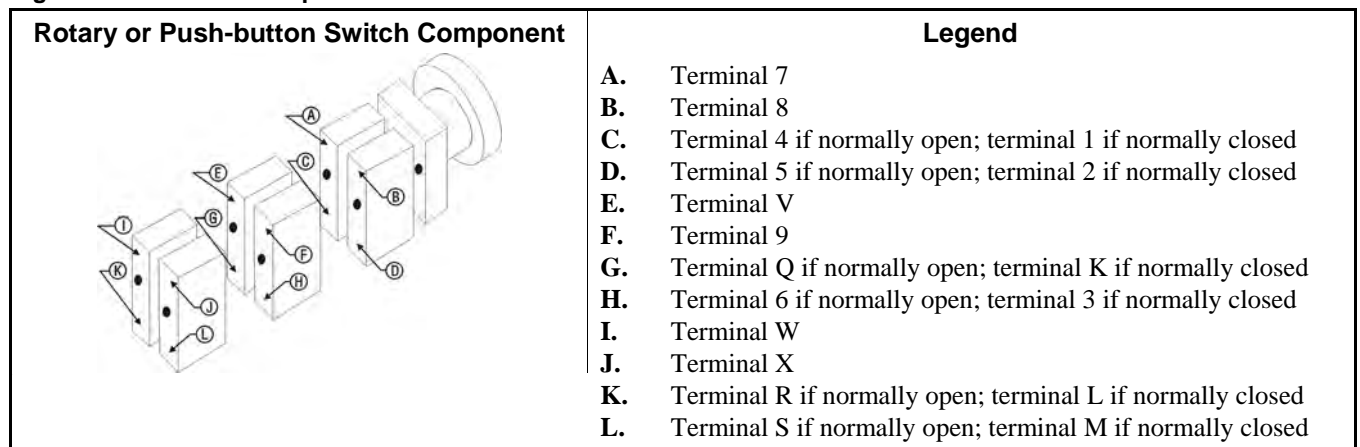


Figure 27: Switch with Replaceable Contact Blocks



### 3. Features of Milnor® Electrical Schematic Diagrams

Document BMP010012 (following this section) is a sample schematic, based on a schematic diagram for the Milnor® gas dryer. For the purposes of this exercise, the schematic is shown gray and explanations of the items on the schematic are shown black.

The item numbers below correspond to the circled item numbers shown on the drawing.

1. The first six characters of the drawing number (W6DRYG) indicate that this is a wiring diagram (W), identify the generation of controls (6), and identify the type of machine (DRYG=Gas Dryer). These characters appear in the drawing number of every schematic in the set.

The characters following the first six are unique to each drawing. The two characters identified as the page number are an abbreviation for the function performed by the depicted

circuitry (S+=three-wire circuit) and establish the order in which the schematic occurs in the manual (schematics are arranged in alpha-numeric order in the manual).

Whenever circuitry changes are significant enough to warrant publishing a new schematic drawing, the new drawing number will be the same as the old except for the major revision letter (A in the example).

2. Included in the drawing title are the class of control system, the title of this circuit, and the circuit voltage.
3. Line numbers are provided along the bottom edge of the drawing. These permit service personnel in the field and at the Milnor® factory to quickly relate circuit locations when discussing troubleshooting over the phone. Page and line numbers are referenced on the drawing as explained in items five and six below.
4. Relay contacts show the page and line number on which the relay coil may be found. This is the type of cross referencing most frequently used in troubleshooting.
5. Relay coils show the page and line number on which its associated contacts are located.
6. Relay contacts and relay coils show the physical location of the relay.
7. The designation MTA applies to electronic circuit board connections. Typically, a control system will contain several different types of circuit boards and one or more boards of each type. A numerical suffix identifies the board type and a numerical prefix identifies which one of several boards of a given type is being depicted. For example, the designation 1MTA5 identifies this as the first I/O board (8 output, 16 input board) in the control system. As shown on the drawing, a pin number follows the board number, separated by a dash. Thus, 1MTA5-9 is pin 9 on this board. The numerical designations for board types vary from one control system to another. Some of the board types commonly encountered on the Mark V and Mark VI washer-extractor control and their designations are as follows:
  - MTM1-MTM8 = Mother board
  - MTA1-MTA5 = 8 output, 16 input (8/16) boards
  - MTA11-MTA14 = 24 output boards
  - MTA30-MTA40 = processor boards
  - MTA41-MTA43 = digital to analog (D/A) boards
  - MTA51-MTA55 = analog to digital (A/D) boards
  - MTA81-MTA85 = balance A-D board

The complete listing of the boards utilized in a given control system can be found in the component list for that system.

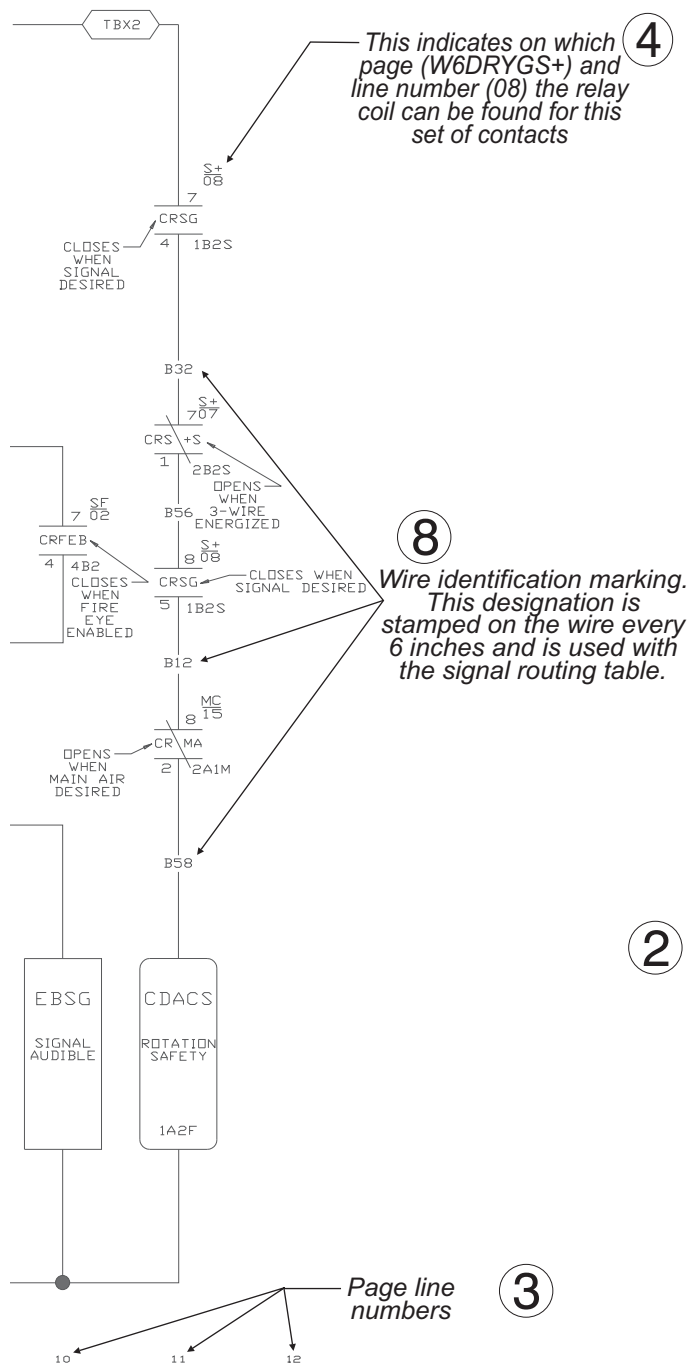
8. Wire numbers, as described earlier in this section, are shown at appropriate locations on the schematic drawing.
9. Where diamond symbols appear at the end of a conductor, these are match points for continuing the schematic on another drawing. The page and line number that continues the circuit is printed adjacent to the diamond symbol. Where more than one match point appears on the referenced page, match diamonds containing corresponding letters.

— End of BIUUUK01 —

This page intentionally left blank.







Major revision (letter)

1 Page number (S+)

Machine type (Gas fired dryer)

6th generation of controls

W = Wiring

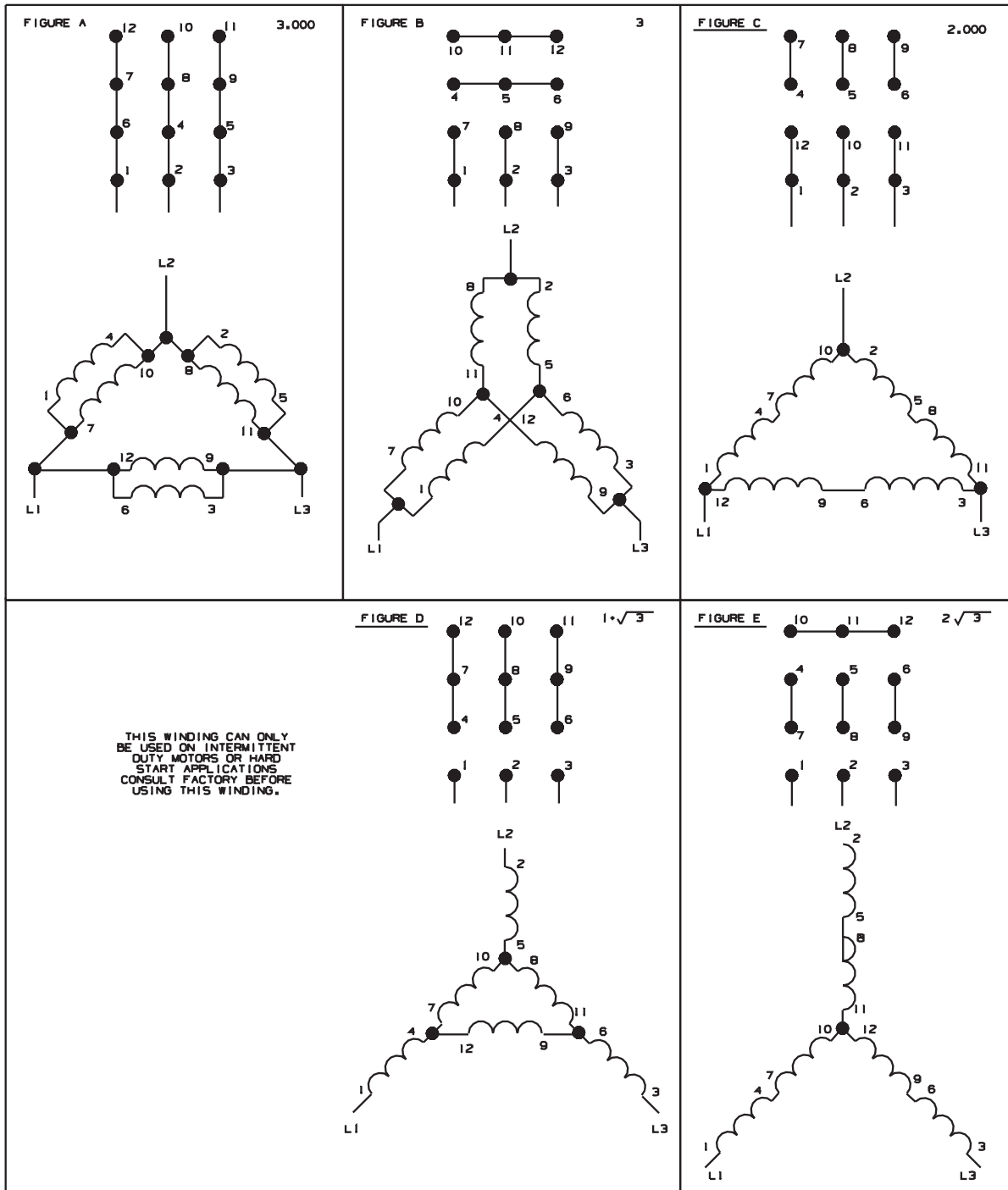
Class of control system

Title of this circuit  
Voltage of this circuit

#### NOTES:

1. TBL IS LOCATED IN LEFT CONTROL BOX.
2. TBA IS LOCATED IN RIGHT CONTROL BOX.
3. TBX IS LOCATED IN LEFT CONTROL BOX.
4. 1MTA5 IS LOCATED ON BIDI (8 OUTPUT-16 INPUT BOARD).
5. REMOVE (J1) IF DRYER HAS VALVE SET SHUT OPTION.

FIGURE	ELECTRICAL VALUES	SUFFIXES							
		B		H		M		T	
		50HZ	60HZ	50HZ	60HZ	50HZ	60HZ	50HZ	60HZ
A	1,000	208	230			200	220	220	240
B	$\sqrt{3}$			208	240	346	380	380	
C	2,000	416	460	220	240	400	440	440	480
D	$1 + \sqrt{3}$					600			
E	$2\sqrt{3}$			380					



06 07 08 09 10 11 12 13 14 15 16 17

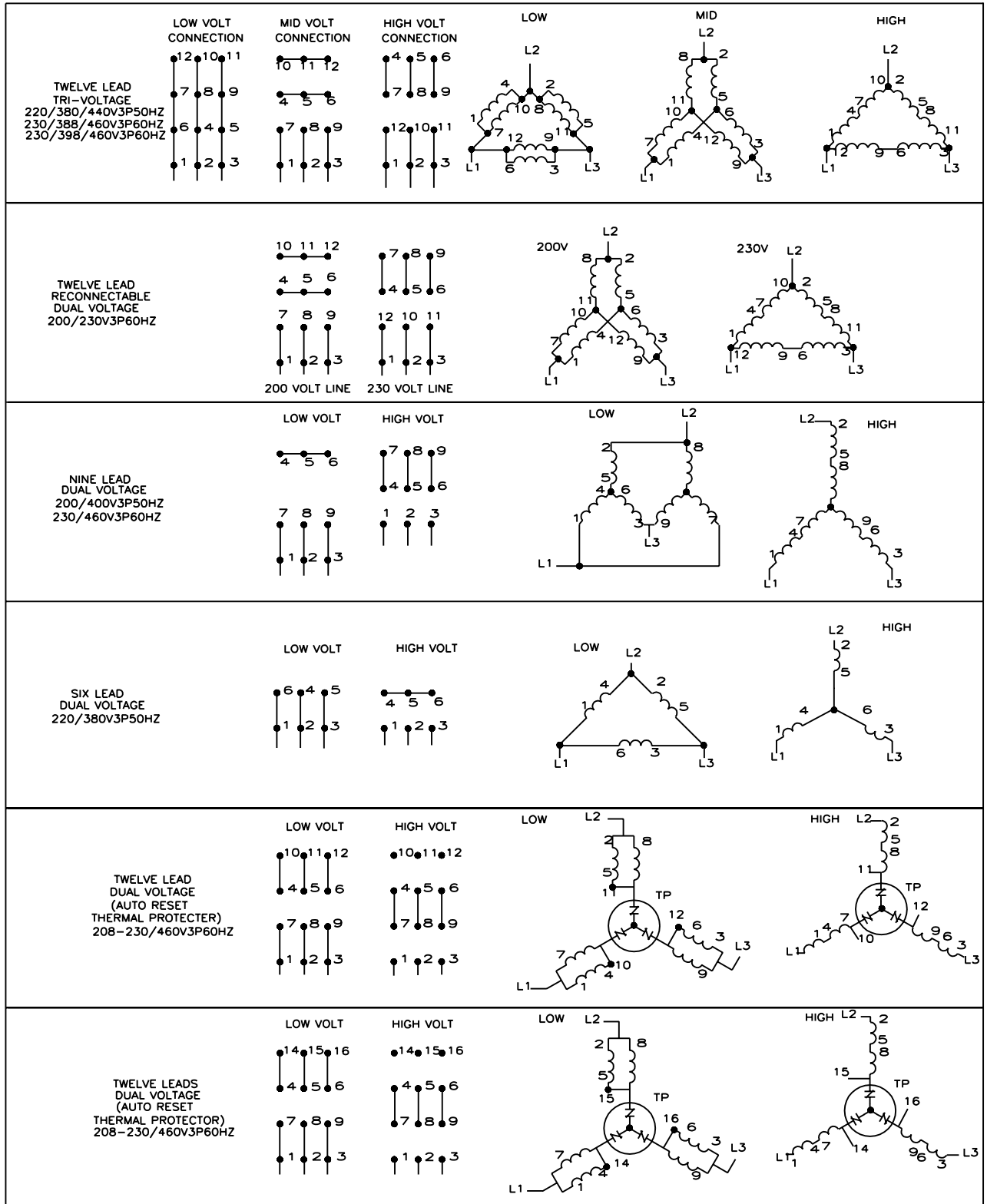
# BMP850029

## MOTOR CONNECTION DIAGRAMS

THREE PHASE SINGLE SPEED MOTORS WITH MULTIPLE VOLTAGE RATINGS  
(ONLY FOR MOTOR SUFFIXES LISTED)

PELLERIN MILNOR CORPORATION

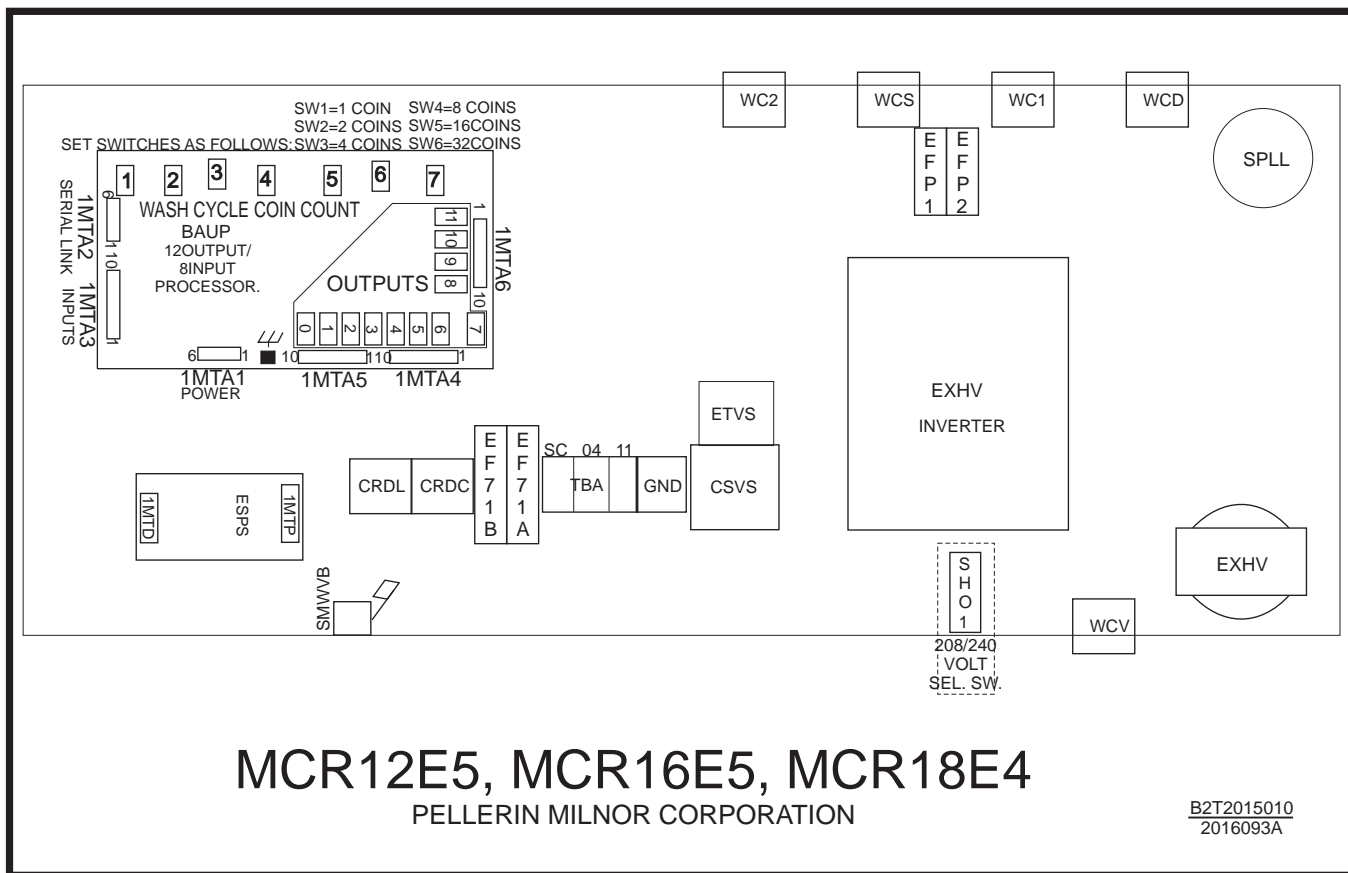




# W80008

THREE PHASE  
MOTOR CONNECTION DIAGRAMS  
SINGLE SPEED MOTORS WITH MULTIPLE VOLTAGE RATINGS  
PELLERIN MILNOR CORPORATION

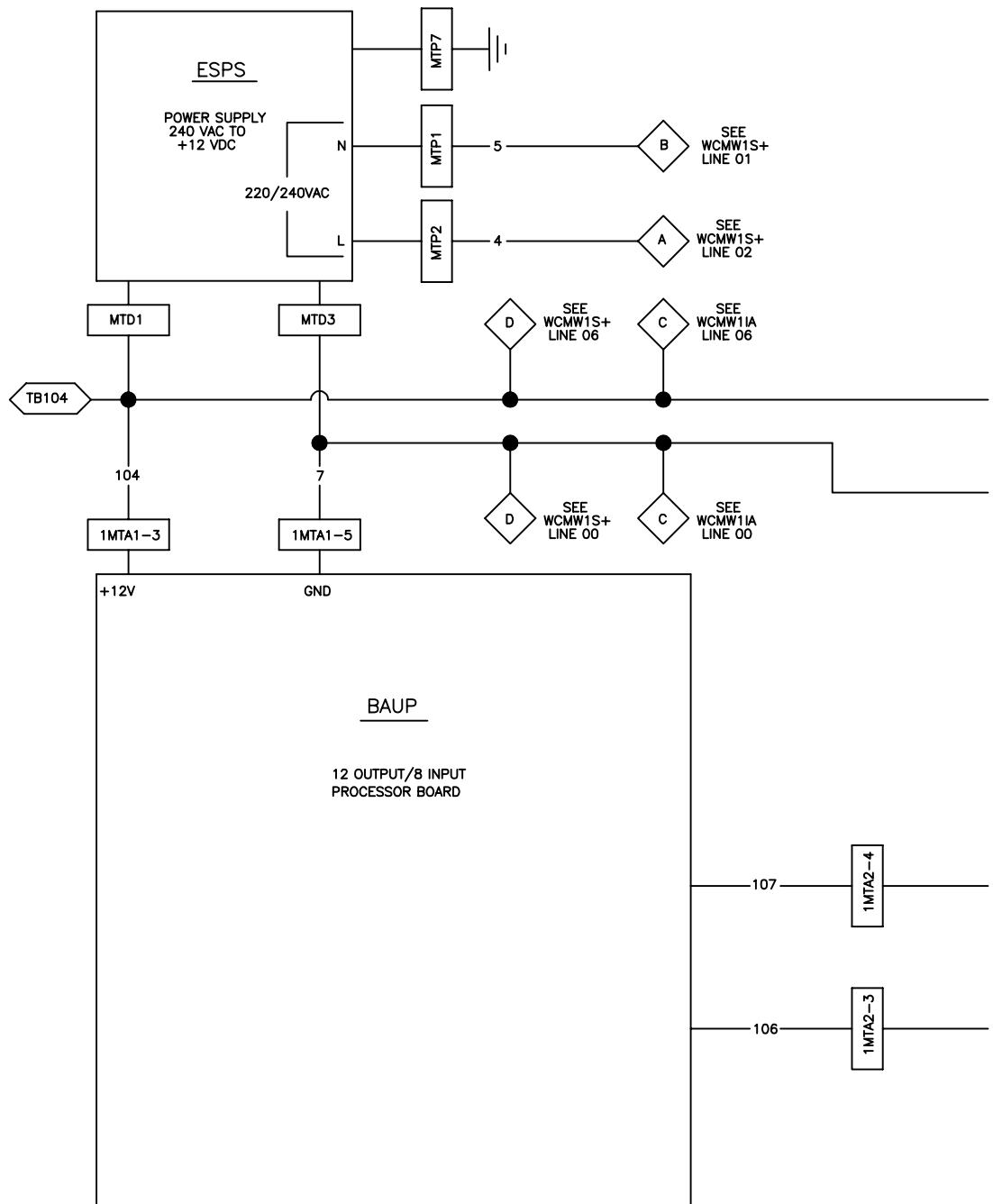
W80008  
2001253A



**WCMW1TG1**  
MCR SERIES - COIN OPERATED  
CONTROL BOX LAYOUTS  
PELLERIN MILNOR CORPORATION

WCMW1TG1  
2016093B

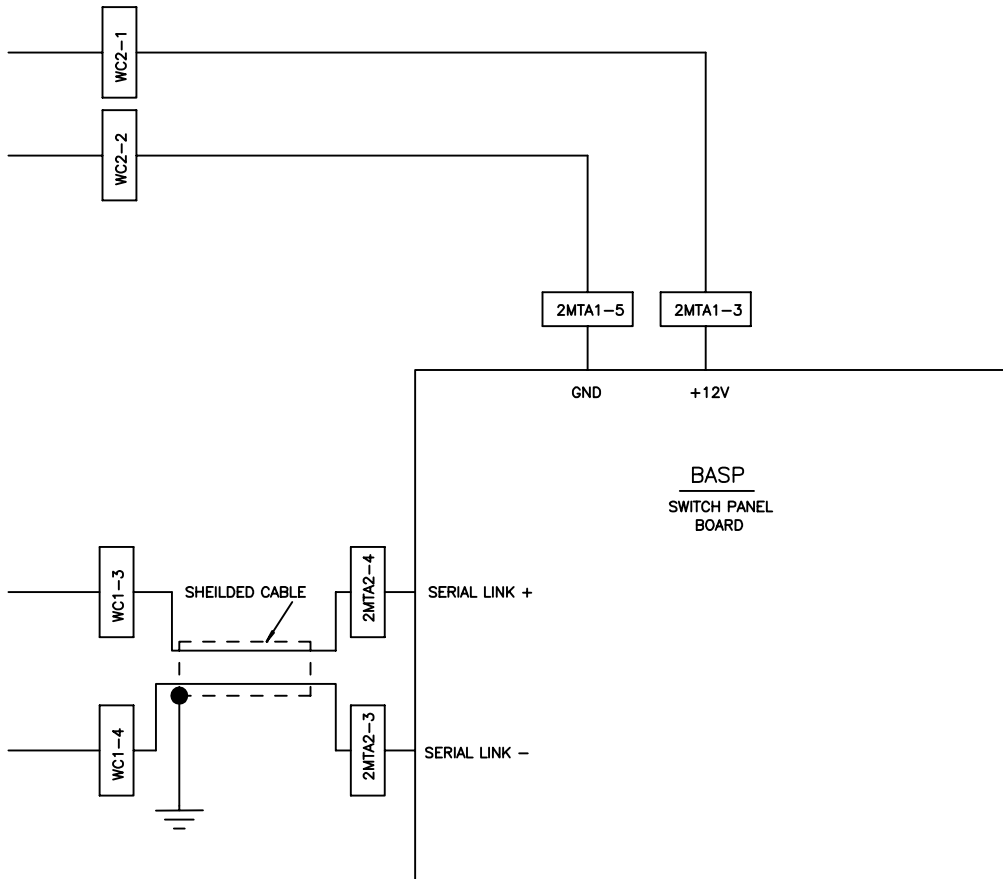
WCMW1TG1  
2016093B



WIRE COLOR CODE		
WIRE COLOR	APPLICATION	MILNOR P/N
ORANGE	A.C. SOURCE	09V165A 14AWM ORANGWIR UL600V105 5000'
RED	A.C. CONTROL / A.C. COMMON	09VS3C18RD 18AWG CSA EQUIP 300V RED
BLUE -104	VDC / D.C. GROUNDS / D.C. SIGNALS	09VS3C18B 18AWG CSA EQUIP 300V BLUE
YELLOW/GREEN	GROUND	09VS3C18YG 18AWG YEL/GRN 300V105C 1430
GREY	SHEILDED CABLE	09V300A02 CABLE 2-COND 18GA SHLD W/GRND ALPHA #2421 OR BELDEN #8760

NOTES

1. 1MTA1, 1MTA2, 1MTA3 AND 1MTA5  
LOCATED ON BAUP PROCESSOR BOARD.
2. 2MTA1 AND 2MTA2 ARE LOCATED  
ON BASP SWITCHPANEL BOARD.



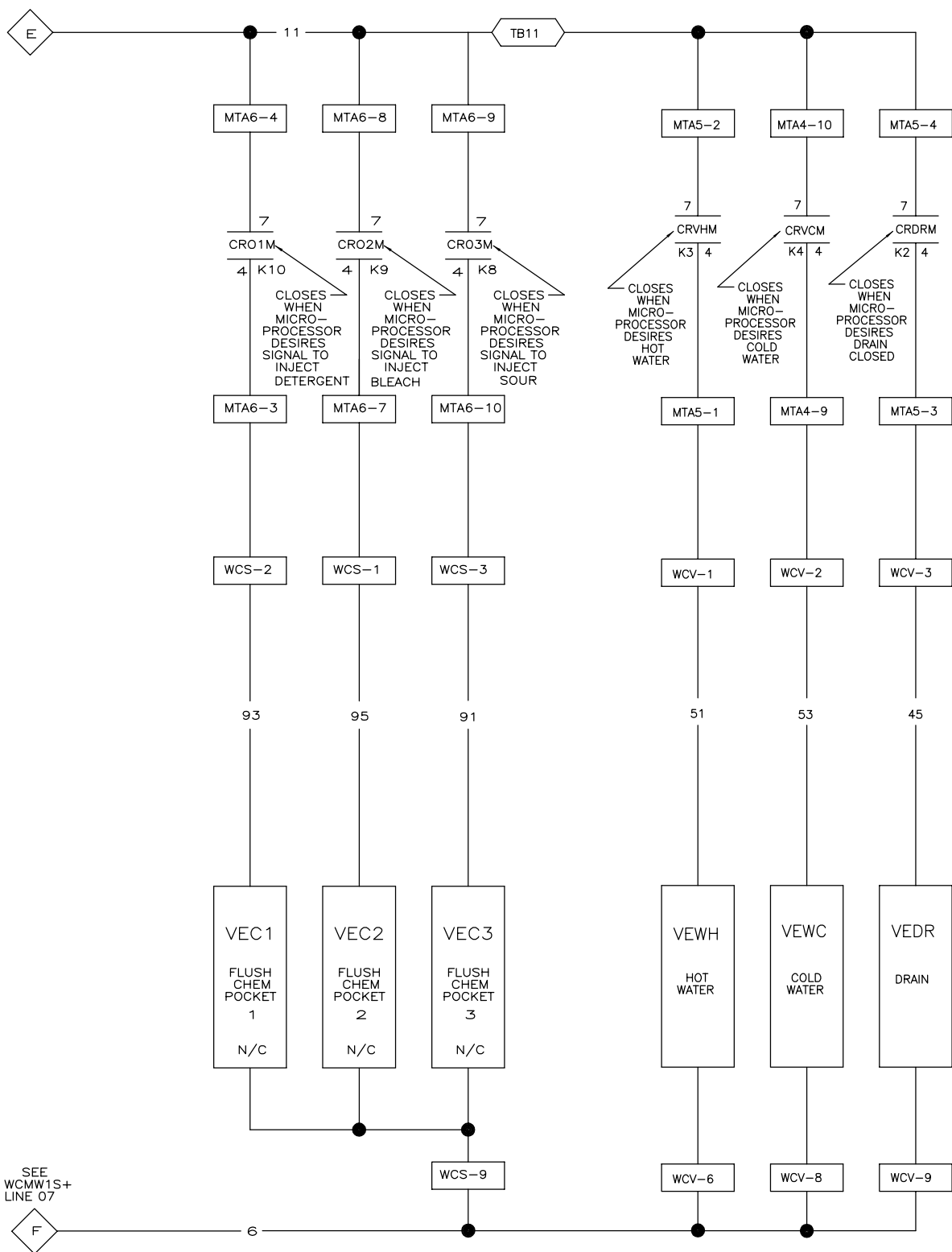
WCMW1BW

MCR SERIES, COIN OPERATED

SCHEMATIC: BOARD TO BOARD WIRING

PELLERIN MILNOR CORPORATION

SEE  
WCMW1S+  
LINE 12



SEE  
WCMW1S+  
LINE 07

00

01

02

03

04

05

06

07

08

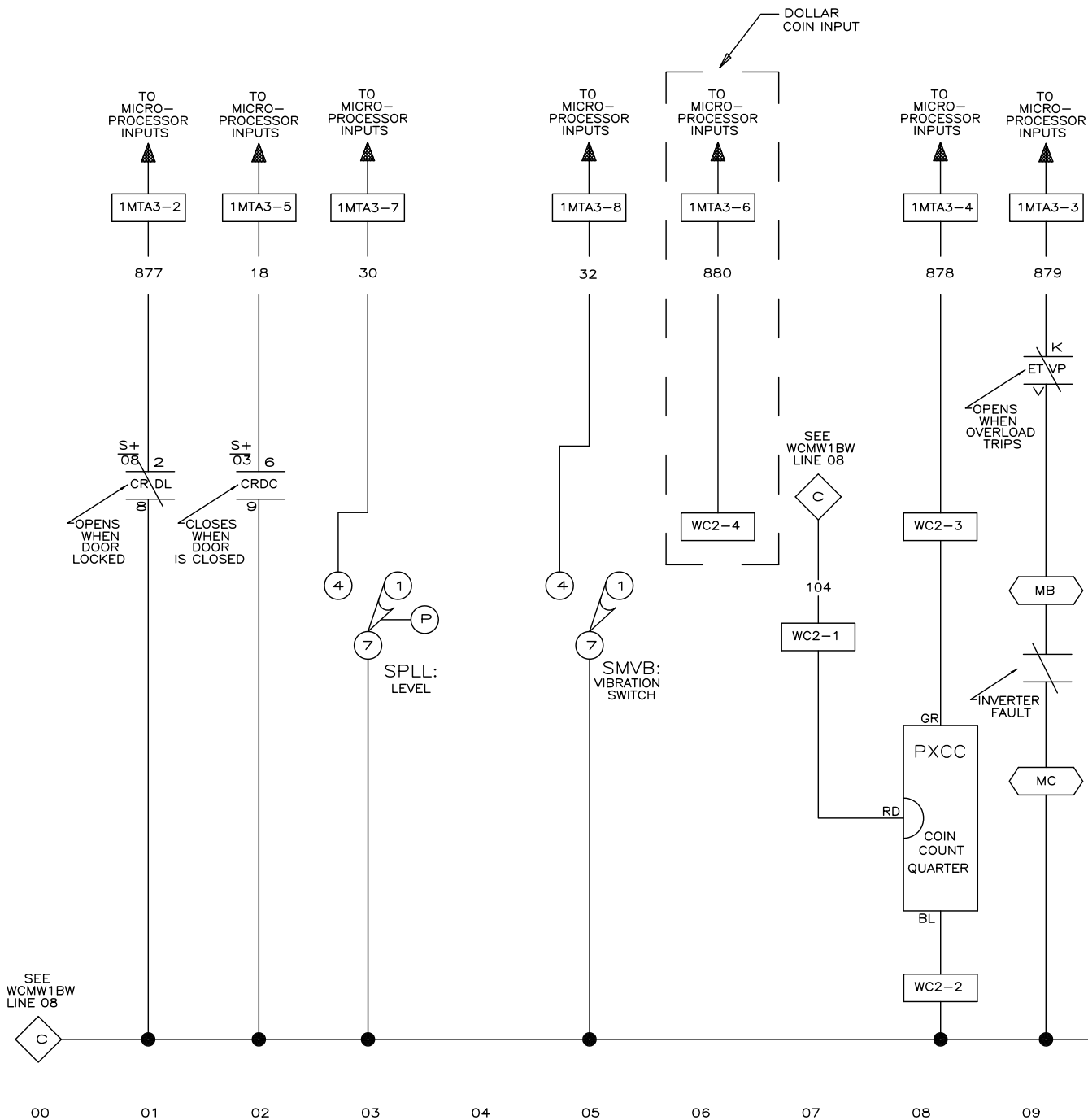
NOTES:

1. MTA-4,5,AND 6 ARE LOCATED ON THE PROCESSOR BOARD.
2. TBS IS LOCATED NEAR THE REAR ACCESS PANEL  
NEXT TO THE INCOMING POWER CONNECTIONS.

**WCMW1CV**  
MCR SERIES, COIN OPERATED  
SCHEMATIC: FLUSHING SUPPLIES AND VALVES  
220V1P50HZ/240V1P60HZ  
PELLERIN MILNOR CORPORATION

~~WCMW1CV~~  
~~2006493B~~

~~WCMW1CV~~  
~~2006493B~~



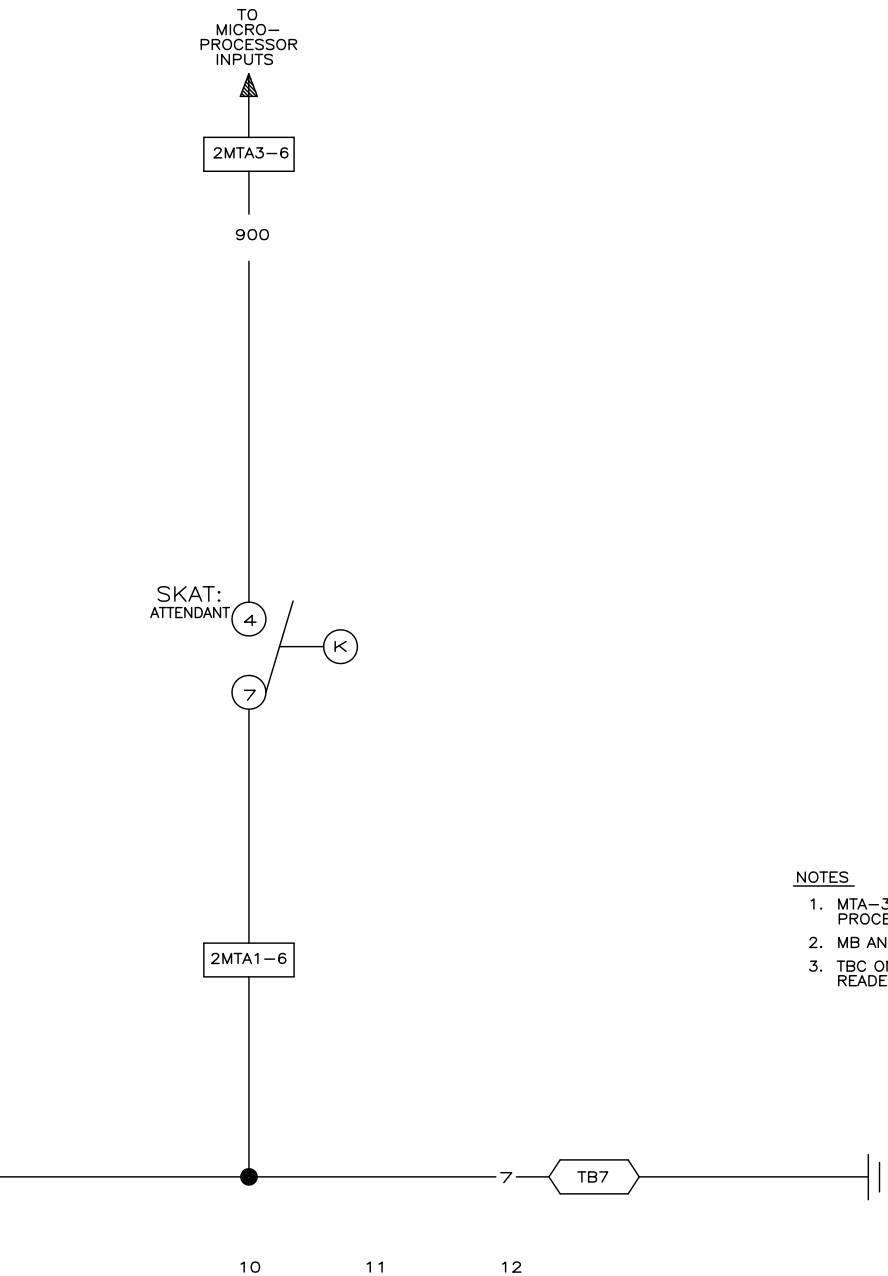


# WCMW11A

## MCR SERIES, COIN OPERATED

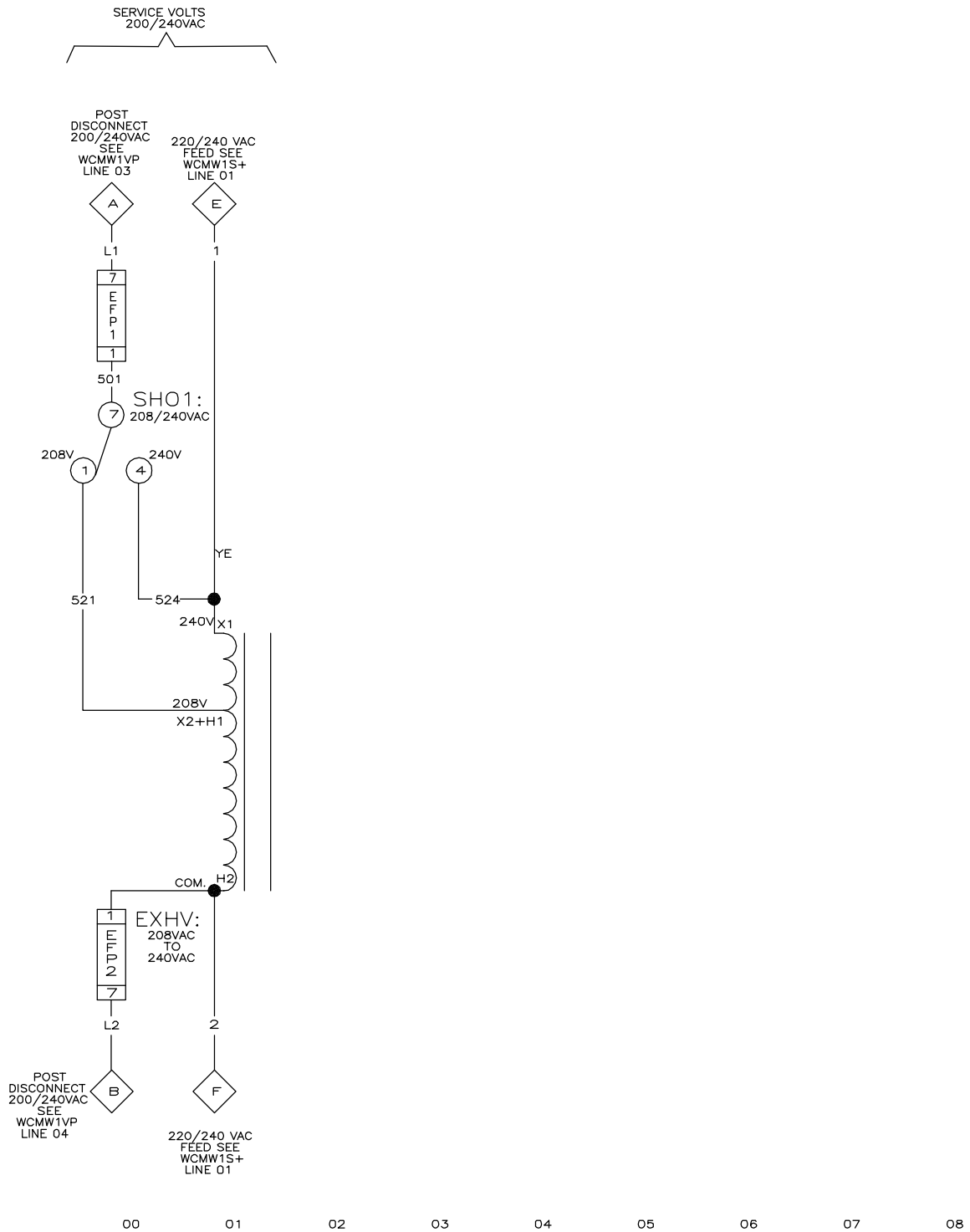
### SCHEMATIC: MICROPROCESSOR INPUTS

PELLERIN MILNOR CORPORATION



#### NOTES

1. MTA-3 AND 7 ARE LOCATED ON THE PROCESSOR BOARD.
2. MB AND MC ARE LOCATED ON INVERTER.
3. TBC ONLY SUPPLIED WHEN CARD READER INTERFACE ORDERD.

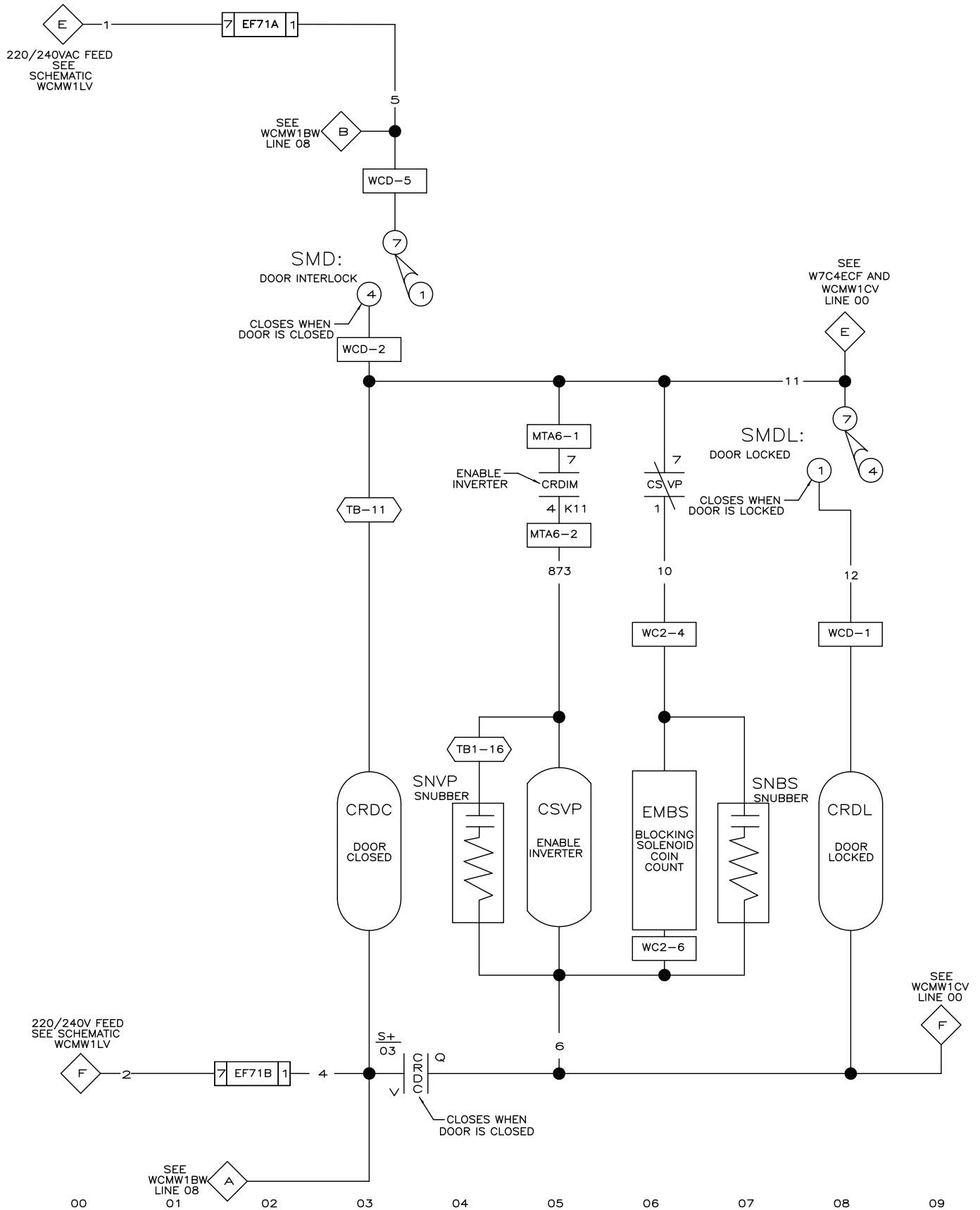


WCMW1LV  
2017365B

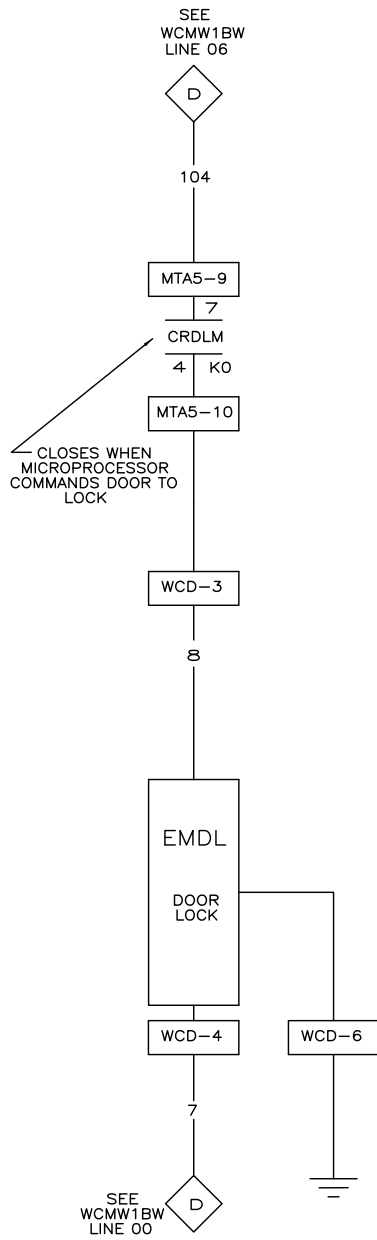


S+15  
BW01  
IA02  
S+04

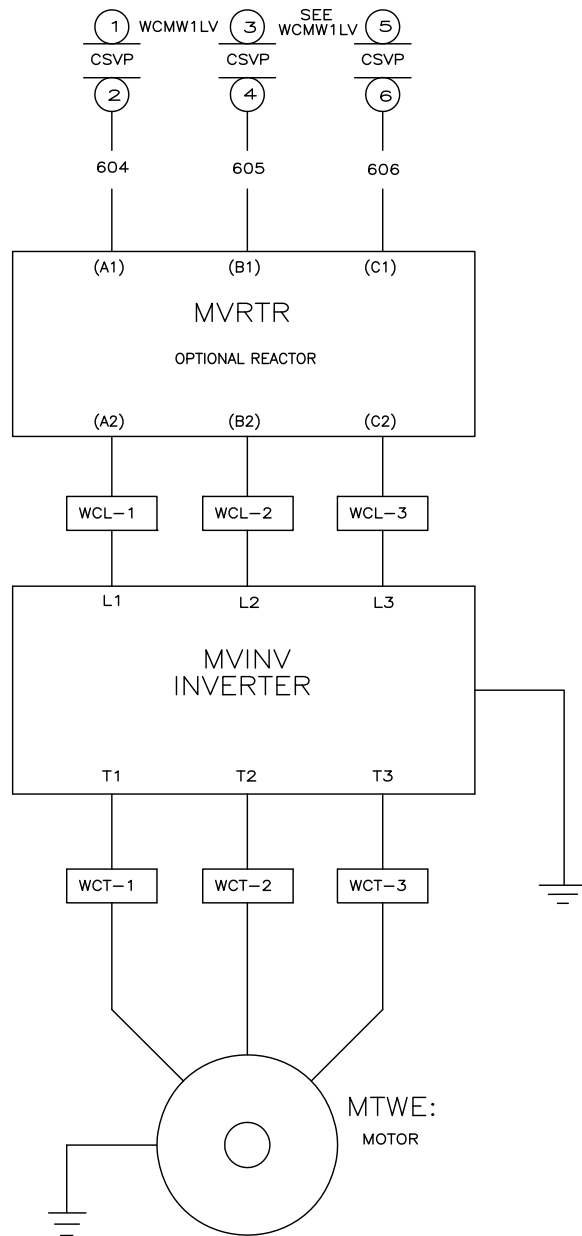
IA01  
VP11



WCMW1S+  
2016076B



**WCMW1S+**  
MCR SERIES, COIN OPERATED  
SCHEMATIC: START CIRCUIT & DOOR INTERLOCK  
220V, 1P, 50HZ/240V, 1P, 60HZ  
PELLERIN MILNOR CORPORATION

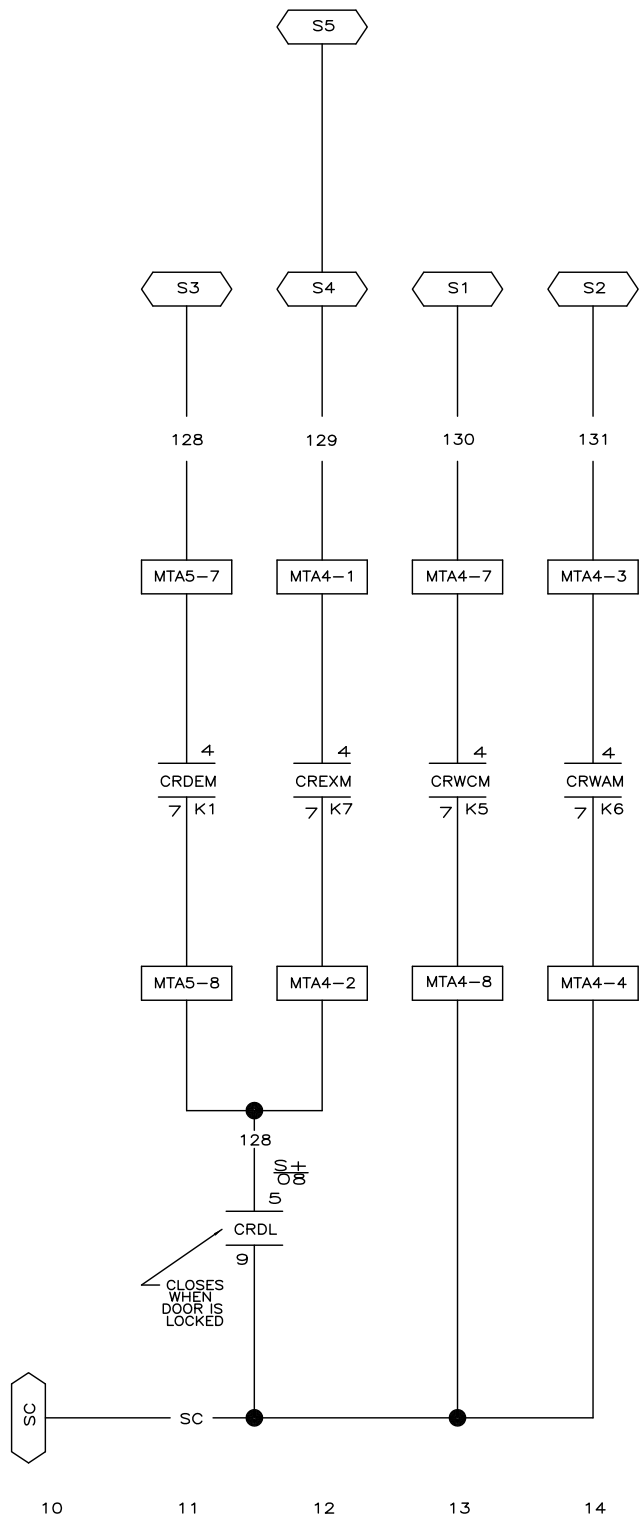


LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09

WCMW1VP  
2015163B

	CW		CCW	
	K5	K6	K1	K7
WASH	X			
DRAIN	X		X	
EXTRACT	X			X

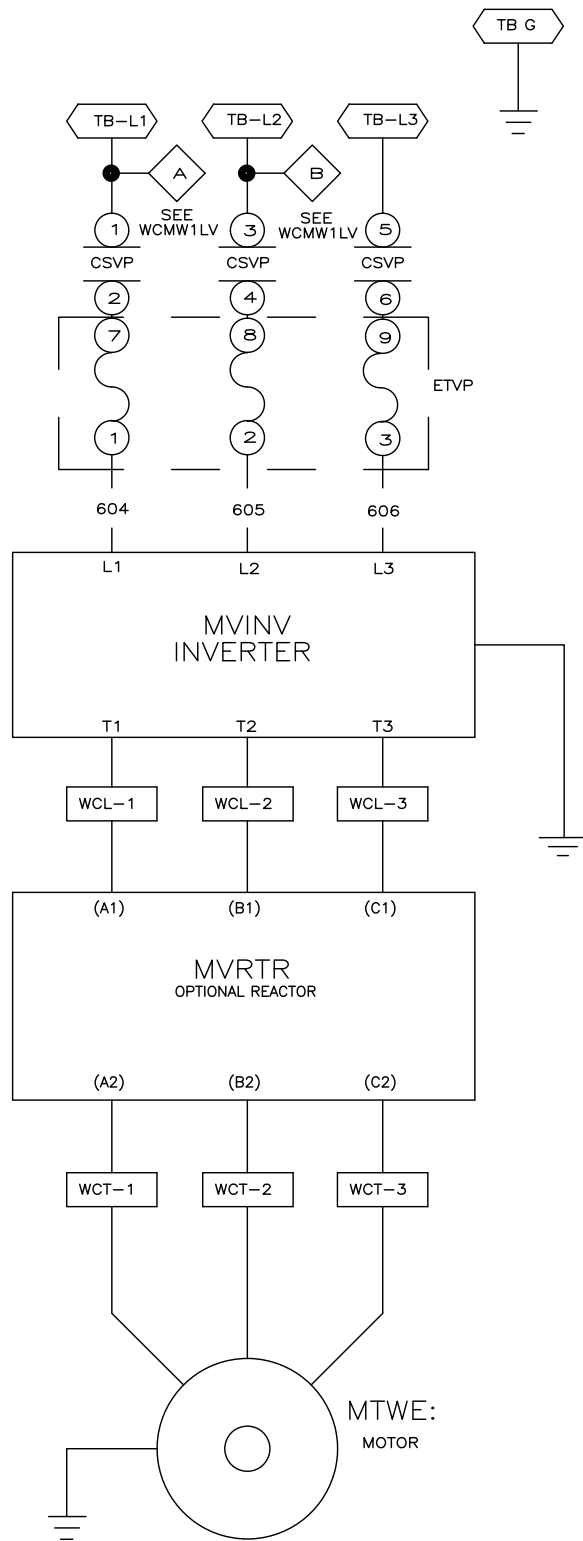


NOTES  
MTA4 & MTA5 ARE LOCATED  
ON THE PROCESSOR BOARD.

# WCMW1VP

MCR SERIES, COIN OPERATED  
SCHEMATIC: MOTOR INVERTER  
(GPD315)

PELLERIN MILNOR CORPORATION



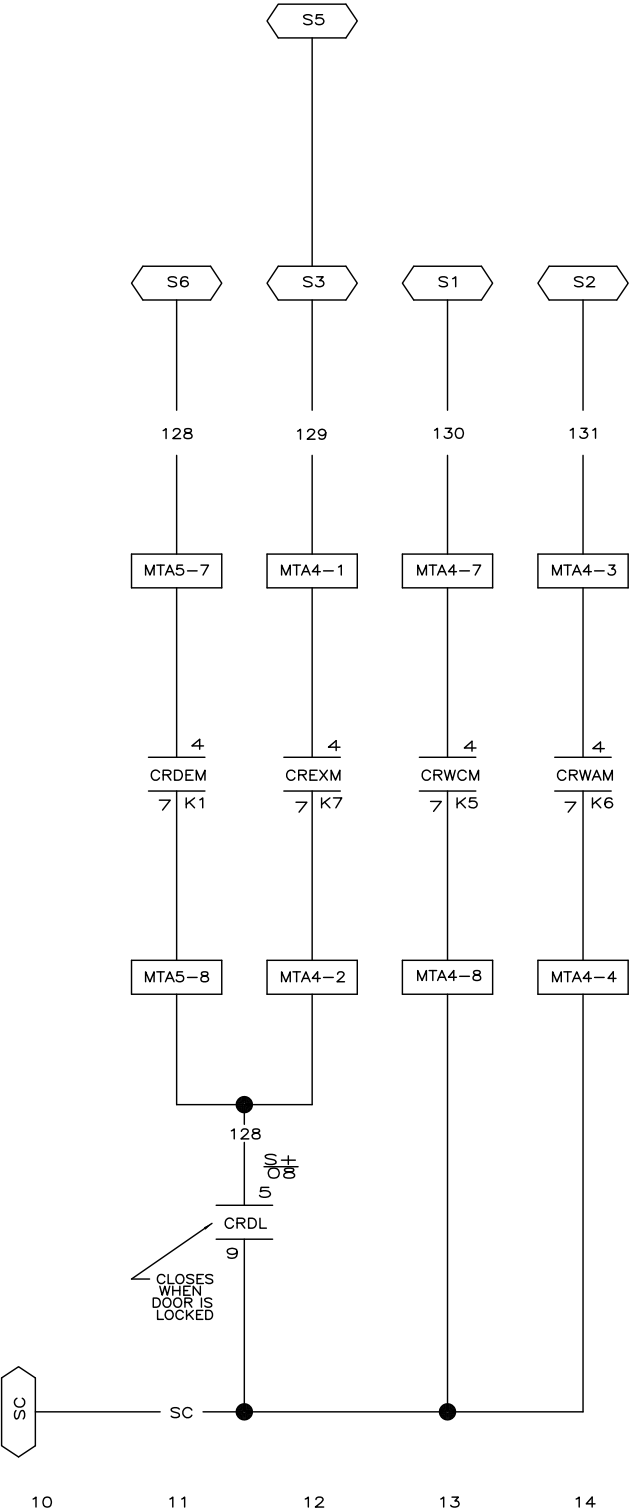
LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09

WCMW1VPA  
2020424B

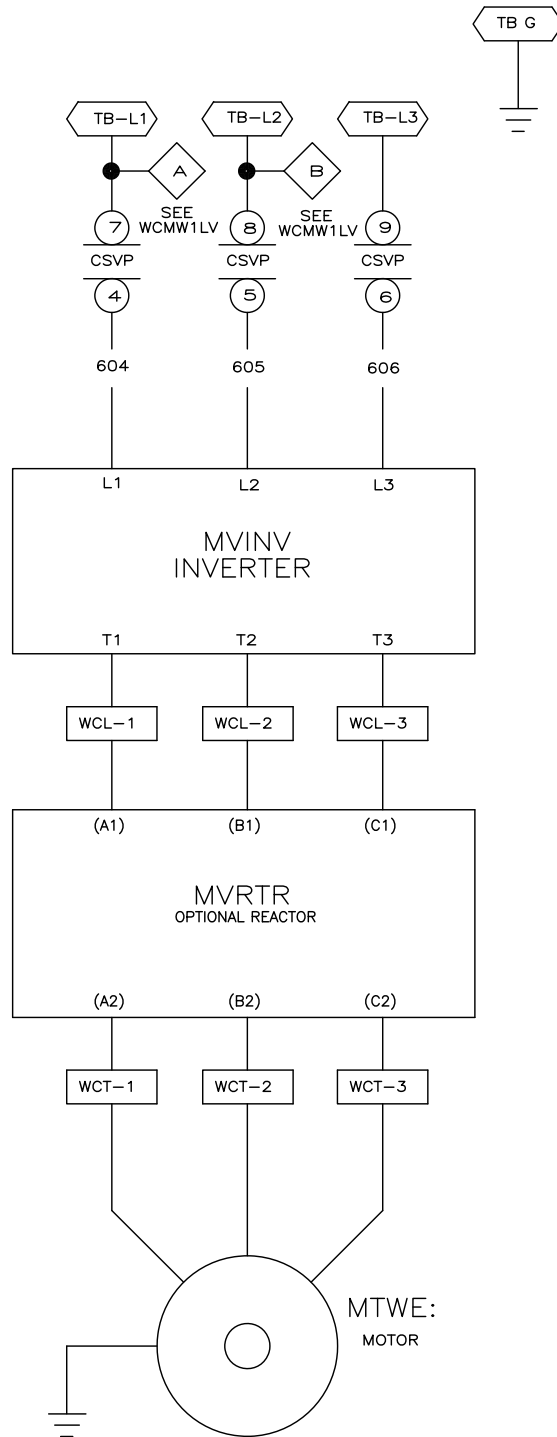


	CW		CCW	
	K5	K6	K1	K7
WASH	X			
DRAIN	X		X	
EXTRACT	X			X



NOTES  
MTA4 & MTA5 ARE LOCATED  
ON THE PROCESSOR BOARD.

WCMW1VPA  
MCR SERIES, COIN OPERATED  
SCHEMATIC: MOTOR INVERTER  
V1000 INVERTER  
PELLERIN MILNOR CORPORATION

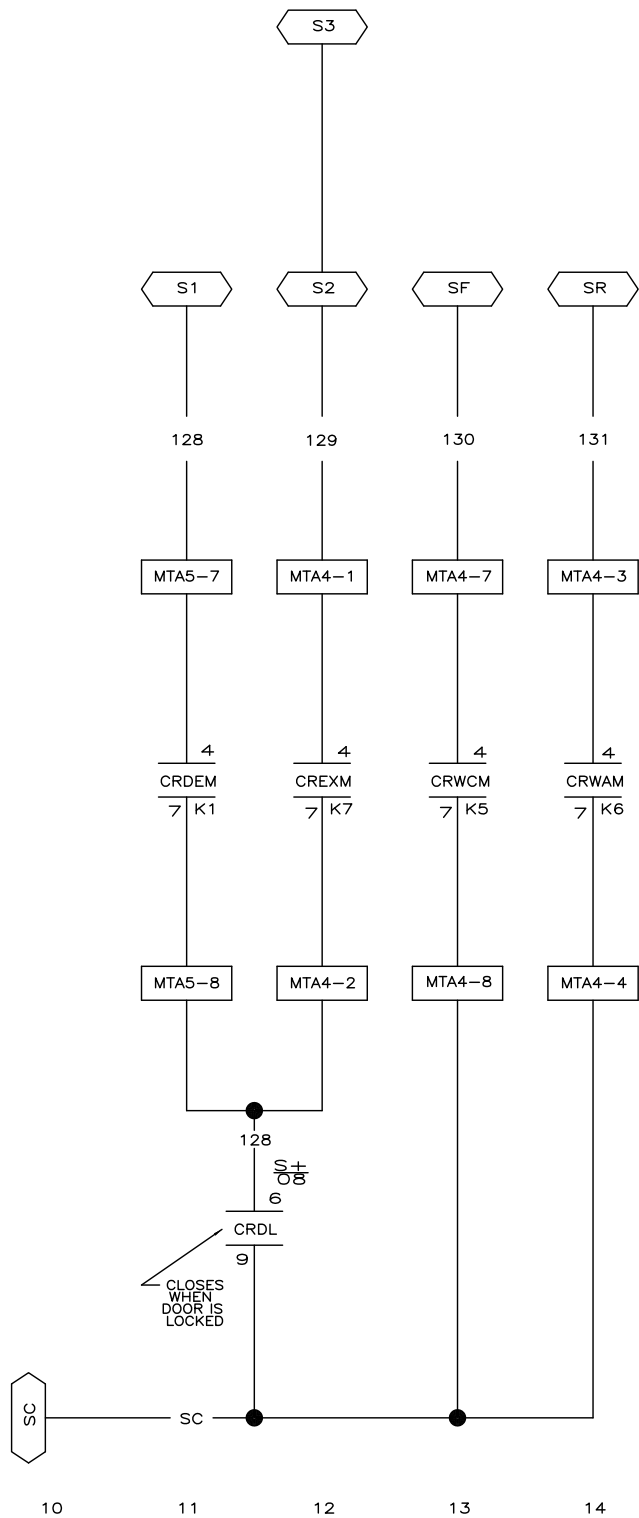


LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09

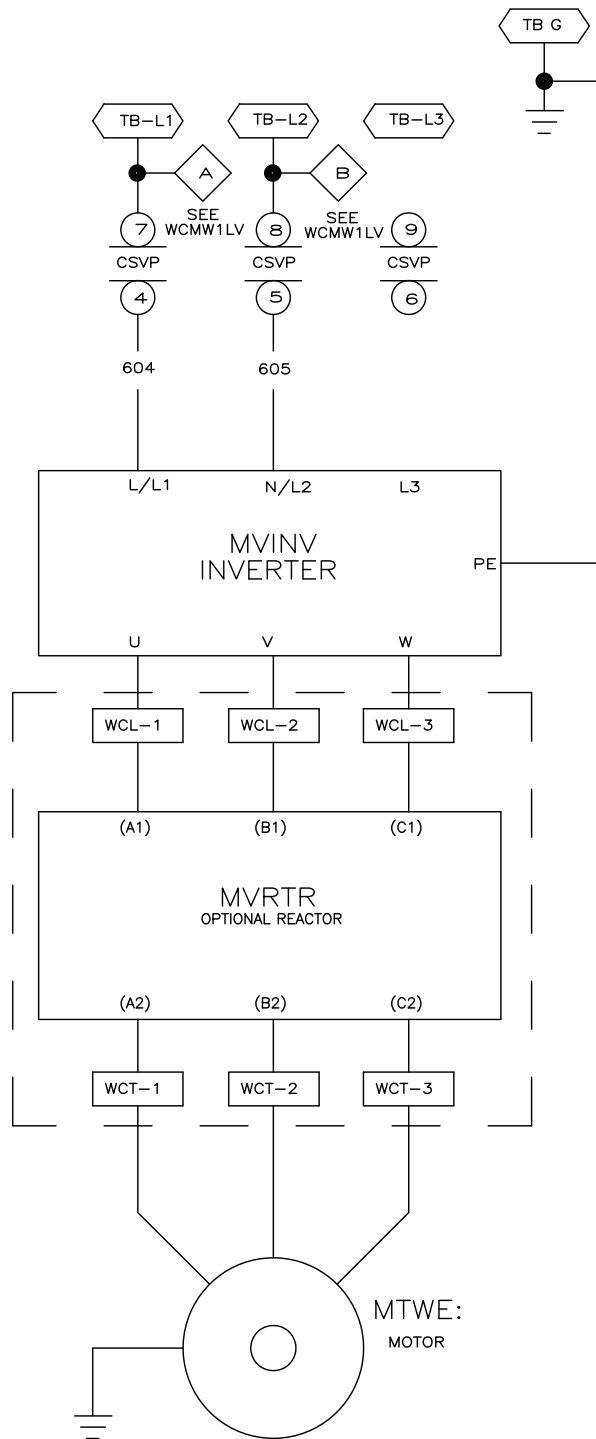
WCMW1VPS  
2021203B

	CW		CCW	
	K5	K6	K1	K7
WASH	X			
DRAIN	X		X	
EXTRACT	X			X



NOTES  
MTA4 & MTA5 ARE LOCATED  
ON THE PROCESSOR BOARD.

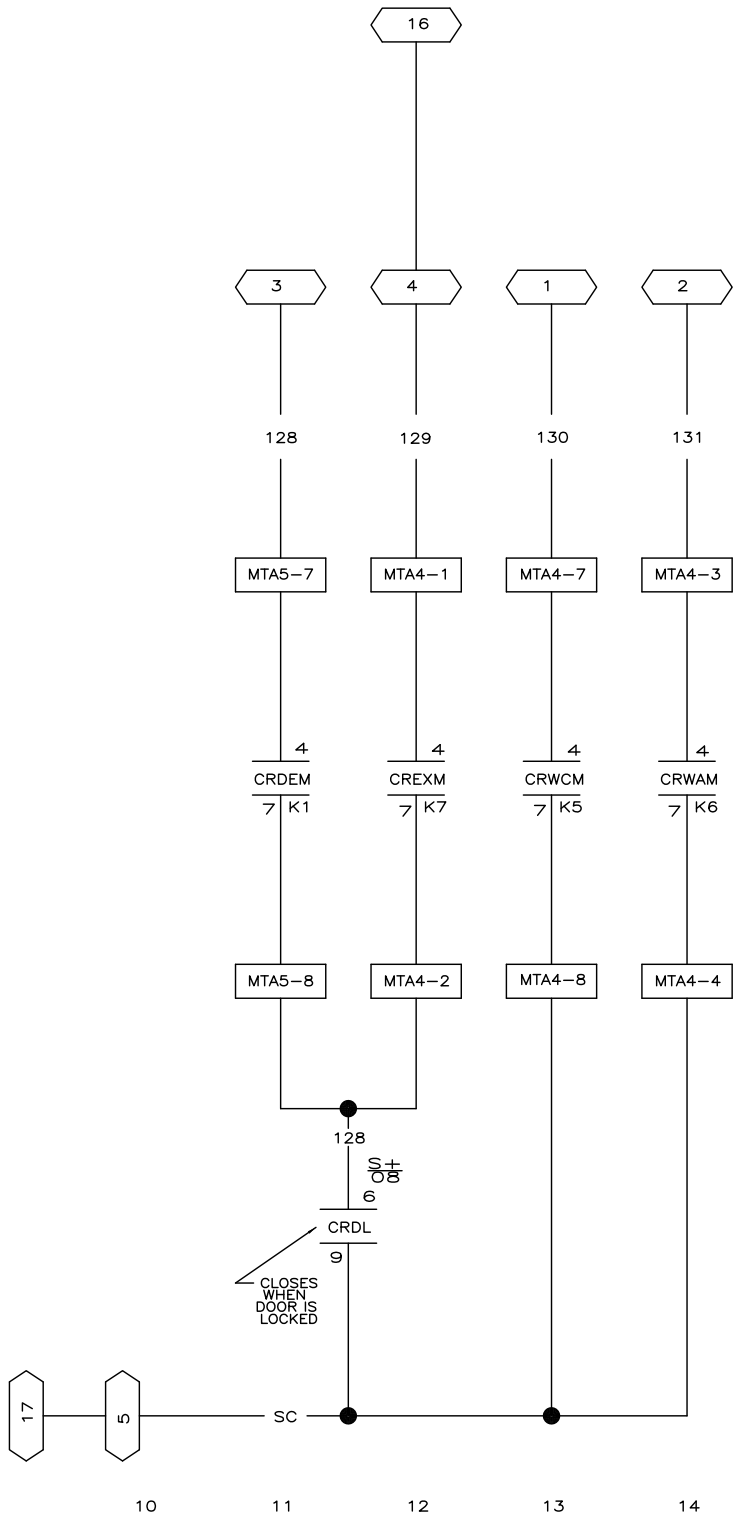
WCMW1VPS  
MCR SERIES, COIN OPERATED  
SCHEMATIC: MOTOR INVERTER  
FOR MODEL MCR09/12 120V, 1 PHASE  
(GPD205)  
PELLERIN MILNOR CORPORATION



LITHO IN U.S.A.

00 01 02 03 04 05 06 07 08 09

WCMW1VPS  
2021203B



NOTES  
MTA4 & MTA5 ARE LOCATED  
ON THE PROCESSOR BOARD.

	CW		CCW	
	K5	K6	K1	K7
WASH	X			
DRAIN	X		X	
EXTRACT	X			X

# WCMW1VPSA

MCR SERIES, COIN OPERATED  
SCHEMATIC: MOTOR INVERTER  
FOR MODEL MCR09/12 120V, 1 PHASE  
(WEG CFW300)

PELLERIN MILNOR CORPORATION